

Reader at Work II



MIDDLE EAST TECHNICAL UNIVERSITY
DEPARTMENT OF BASIC SCIENCES

1

HALLEY'S COMET

A comet is an object that travels around the sun leaving a bright trail behind. For more than two thousand years, the return of Halley's Comet has been observed and recorded on Earth every 76 years. Its 1986 visit, however, was the first time that humans took a close look at its nucleus. One spacecraft went within a few hundred kilometres of the nucleus. Two Soviet craft, Vega 1 and Vega 2, came within 10,000 km of the nucleus on March 6th and March 9th; and the European Space Agency's Giotto space probe passed within 600 km of Halley's Comet on March 14th. Pioneer Venus Orbiter found that the cloud of gases and dust which make up the tail spread over a region about 20,000,000 km across, 15 times larger than the Sun. Scientists also discovered that the comet was losing about ten metres of material from its surface every orbit, suggesting a lifetime of about only 1,000 orbits - in about 100,000 years it will disappear.

A. Mark the statements as True (T) or False (F).

- _____ 1. Halley's Comet was first seen more than 2000 years ago.
- _____ 2. In 1986, two of the spacecraft which observed Halley's Comet were from the Soviet Union.
- _____ 3. The sun measures 20,000,000 km across.
- _____ 4. Halley's Comet has a lifetime of about 100,000 years left because it is losing material from its surface every orbit.

B.

- 1. How often can Halley's Comet be observed from Earth?
- 2. What is the tail of Halley's Comet made up of?

HIGH-RISE

In October 1981, newspapers in the USA and the UK reported plans for a 169-storey building in Chicago. If this is built, it will be almost twice as tall as the 384-metre Empire State Building in New York.

5 Since the early days of civilised man, buildings have been getting higher all the time. Today, all large cities have tall buildings, either for use as offices or as flats. These are called high-rise buildings. The tallest of all in fact, are not used for offices or for living, but are special structures for radio and television. For instance, Warsaw Radio
10 Mast in Poland, which is 646 metres tall, is the tallest of such structures. The world's tallest office building is the Sears Tower in Chicago. This has 110 storeys, and reaches a height of 443 metres. 16,700 people work inside the building, and there are more than one hundred lifts for their use .

15 But why do we have high buildings? Is there any real advantage? The most common reason given is that in many cities there is a lack of space.

The island of Manhattan, New York City, is a good example of this. Here, office space is very expensive. There is no more land.
20 Buildings have to go up. The same reason is given for high office buildings in Tokyo, London and other large cities of the world.

But what about people? Is it really necessary to build high buildings for people to live in?

25 Today, there are many who believe high buildings actually damage people's minds and feelings. These people believe high-rise buildings:

- have no advantages, except for their owners and for banks
- are not cheap to build
- do not help create open space
- destroy the landscape
- 30 -cause crime
- are not good for children
- are expensive to look after

High-rise buildings lower the quality of life. The following reports show this.

35 Report from England, 1967: The higher people live off the ground, the more likely they are to suffer from mental illnesses. Women, because they spend most time at home, suffer most.

3. The report from Denmark_____.
- a) shows more people live in high-rise buildings in Denmark than in other countries
 - b) states the disadvantages of high-rise buildings for children
 - c) shows how women living in high-rise buildings suffer
 - d) says that crime rate is higher in high-rise buildings in Denmark than in other countries
4. Which of the following is not true?
- a) The tallest buildings in the world are special structures used as offices.
 - b) When people live in high-rise buildings, they are cut off from real life.
 - c) High-rise buildings are still built although they have many disadvantages.
 - d) Mental illnesses increase especially among women who live in high-rise buildings.

3

ATOMS (1)

5 Atoms are the smallest particles of matter that have the properties of the chemical elements - hydrogen, oxygen, iron, and so on. They are so small that it is impossible to see them even with a high-powered microscope. Everything on Earth is made up of atoms in different chemical combinations. Water, for instance, is a compound of two elements, two atoms of hydrogen and one atom of oxygen. However, some elements, such as gold and diamonds exist uncombined.

10 Ninety-two elements occur naturally. They range from the lightest, hydrogen, to the heaviest, uranium. Each of the elements has been assigned a number - 1 for hydrogen, 8 for oxygen, 29 for copper, 92 for uranium. They are usually arranged on a chart called the periodic table, which puts elements with the same chemical properties in the same column. Thus, all inert gases, such as helium, appear in one column in the periodic table.

15 The formulation of the atomic theory is one of the great achievements of science. It has enabled us to understand the properties of the elements, the basic building blocks of all matter, so that we know which elements can combine with each other. The science of chemistry is based on our understanding of atoms and their behaviour

20 in interacting with one another.

Another science called nuclear physics came into being to study the structure of the atom itself. As scientists investigated the atom, it became apparent that the atom was not a solid piece of matter, but was made up of even smaller particles. The first subatomic particle that

25 scientists identified was the electron, a tiny piece of matter with a negative electric charge. The weight of an electron was very small indeed - approximately one eighteen-hundredth of the weight of a hydrogen atom, the lightest of all the elements. Scientists came to believe that the electrons orbited the nucleus of the atom, in which
30 almost all of the weight of the atom was concentrated. It is now known that electrons revolve around the nucleus at incredibly fast rates of speed.

For many years scientists did many different kinds of experiments and all had the same idea about the structure of atoms. However, when
35 they managed to obtain more evidence, they had to modify the atomic theory. There was not just one kind of particle in the nucleus of an atom; there were two. One of these has a positive electric charge and is called a proton. The other is neutral, that is, it has no electric charge. For this reason, it was called a neutron.

A. Complete the following sentences.

1. Helium (line 13) is a(n)_____.
2. Elements (line 17) are_____.
3. An electron (line 25) is a(n)_____.
4. If something is neutral (line 38), it_____.

B. What *do* the following refer to?

1. They' (line 8): Elements which_____
2. 'It' (line 16):_____
3. 'all' (line 34): all_____
4. 'these' (line 37): these_____

C. Mark the statements as True (T) or False (F).

- _____ 1. The theory about the structure of atoms has changed through years.
- _____ 2. An electron is heavier than a hydrogen atom.
- _____ 3. Electrons turn around the nucleus at a low speed.

D.

1. In what way are gold and diamonds different from other elements?
2. What does nuclear physics study?

E. Complete the following statement.

The periodic table arranges elements according to_____

MUSIC OR NOISE?

Vibration is movement and sound that comes from objects which vibrate. For example, guitar strings, when touched, vibrate and make a sound; and drum skins, when hit, vibrate and make a sound.

5 Vibrations are described in terms of amplitude and frequency. In the case of a guitar, the amplitude, or loudness, is the distance the string moves; and in the case of a drum, the skin moves at a certain speed and vibrates a certain number of times each second. If the skin, or the string, vibrates 440 times per second, then we say it has a frequency of 440 Hertz (or 440 Hz for short). If it moves faster or slower, then it
10 has a higher or lower frequency.

The human ear cannot detect all sounds. Sounds must have a certain amplitude, and a frequency between 40 Hz and 16,000 Hz. Vibrations above or below these will not be detected by the human ear even if they are extremely loud. Many animals have better hearing
15 than us. Dogs, for example, can hear higher frequencies; and bats can hear sounds with incredibly high frequencies - up to 48,000 Hz.

The vibrating object first causes the molecules in the air around it to vibrate at the same frequency and amplitude. These molecules then cause other molecules to vibrate and so it continues until molecules of
20 air inside our ears vibrate. Finally our eardrums vibrate and cause minute, i.e. very small, electrical signals to be sent to the brain.

All sounds come from vibrations. But not all sounds are the same. Some are pleasant to hear, such as music. Others are unpleasant and these we call noise. What's the difference between the two? This is a
25 difficult question to answer. But the sounds of musical instruments, which are usually good to hear, do have a special characteristic: musical instruments, such as the guitar and the drum, vibrate at more than one frequency. Thus, when a guitar string produces the note of A, the vibration of greatest amplitude has a frequency of 440 Hz. But.
30 there are vibrations of other frequencies present, too. They have less amplitude, and so we do not consciously hear them. But they add to the sound and form a pattern of frequencies which is pleasant to hear. This is called harmonics . It is harmonics which help us to identify the musical instrument we hear.

35 Of course, there are other characteristics of music, too. One of these is rhythm, the sequence of sounds. Rhythm is not exclusive to musical sound; but it is one of the factors which help make music pleasant to hear.

5

THE AUSTRALIAN ABORIGINES

'Aborigines' are the first or original inhabitants of a country. The Australian Aborigines have lived in Australia for over 40,000 years. At one stage in their history, there were possibly over a million Aborigines. However, -when the first white settlers arrived in the 18th century and stole their land, many Aborigines died fighting to protect it. Today, only about 100,000 survive. Although some still live a traditional life in remote desert areas of the Australian outback, many now live in poor conditions in cities and towns.

They have suffered for two hundred years from white exploitation. However, the Australian government has recently given some land back to them including 'Uluru'. This huge rock, in the centre of Australia, is of great importance to the Aborigines.

Although winning back this land is encouraging, the Aboriginal people know there is a long way to go before they win back the rest of their land.

1. When did Aborigines arrive in Australia?
2. Why is the population of the Australian Aborigines smaller now?
3. Where do most of the Australian Aborigines live?
4. What is 'Uluru'?

AQUIFERS

The **water on the earth is recycled constantly in a** process known as the hydrologic **cycle. First, the water in the** oceans evaporates. It changes into vapour and forms clouds in the sky. Water accumulates in clouds and returns to the surface of the earth in some form of precipitation, which can be either rain, snow, or ice. When the water reaches the earth's surface, it runs off into streams, rivers, lakes, and at last, into the oceans, where the cycle begins again. The water on the surface of the earth and in the atmosphere is known as the hydrosphere. Not all precipitation goes into rivers. Some of it seeps into the ground by a process called infiltration. This water collects under the earth's surface and is groundwater.

Groundwater is important for two reasons. First, 95 per cent of the earth's water is in the oceans. It is salty and useless for plants, animals, or humans. Fresh water, which people can use for drinking or for agriculture, is either on the earth's surface in lakes and rivers or underground. Surface water is .05 per cent of the earth's water while underground water is 4 per cent of the earth's water. Consequently, groundwater provides 95 per cent of the available fresh water on the earth. Second, groundwater is important not only because of the size of the supply, but also because of its dependability. It is always available since it does not depend on seasonal precipitation.

Today, there seems to be a problem with groundwater. Until recently, groundwater was clean. It was not necessary to purify it before people drank it. However, for many years, people have been burying garbage and poisonous wastes underground. These poisons have polluted the groundwater in many places. Therefore, it is unsafe for human use unless the dirty and harmful substances are removed first.

Aquifers are geologic formations that allow groundwater to accumulate and move through them. Although they are often called underground rivers, these formations are not like surface rivers. The water accumulates in one area underground. The amount of water an aquifer contains is enough to be easily pumped out for use.

People have been using groundwater for many years. With an increasing population, the need for water has also increased. Some cities depend only on groundwater for their water supply. They are using underground water very quickly. In some places the water supply may soon be used up, and there will be no water for a large population. One example of this is Tucson, Arizona, which is located

40 in the Sonora desert in southwestern United States. It is on a very
large aquifer which supplies water for the area at the present. The
aquifer provides water for an increasing population in the city and for
agriculture throughout southern Arizona. At the present time, the city
45 is using 225,000 acre feet of water per year, 75,000 acre feet are being
returned to the aquifer through the natural processes of the hydrologic
cycle. Therefore, people are using about three times more water than
nature is supplying. The water table, which is the level of the water in
the aquifer, is dropping lower every year. Some wells have already
gone dry and have either been closed or drilled deeper. Scientists
50 predict that the supply of water in the aquifer will run out in twenty to
eighty years.

Aquifers contain a generous supply of water. They are large, easily
available, and mostly clean. Still, people who depend only on aquifers
for their water supply must use their water carefully. Their lives and
60 their children's lives depend on conserving the water they have.

A. What do the following mean?

1. 'infiltration' (line 10): the process by which _____
2. 'groundwater' (line 11): _____
3. to purify (line 23): to _____
4. to provide (line 42): to _____
5. 'conserving' (line 60): _____

B. Mark the statements as True (T) or False (F).

- _____ 1. Precipitation can be in various forms.
- _____ 2. Groundwater exists whether there is precipitation or not.
- _____ 3. Oceans contain 95 per cent of the fresh water on the earth.
- _____ 4. As groundwater is polluted, people do not use it any more.
- _____ 5. Groundwater moves through aquifers.
- _____ 6. In surface rivers the water accumulates in one area.
- _____ 7. Half of the water that people in Tucson use returns to the aquifer.
- _____ 8. Tucson is an agricultural area.
- _____ 9. 'Water table' is a term related to the level of water in a well.

C.

1. Write two sources of fresh water that are on the earth's surface.
2. How do people obtain water from an aquifer?
3. What happens to a well that goes dry?

EDUCATIONAL STANDARDS

After rising steadily for almost a century, standards of education in the public schools of Europe and North America have come to a standstill. In fact, in the opinion of many parents and employers, they are actually falling. More and more children are leaving school at an early age. Naturally, they have very little knowledge of reading and writing. Thus, the number of illiterate people is increasing, bringing about a social problem once again. With dropout rates of twenty-seven per cent in high schools and fifty per cent in colleges, the American education system is clearly in trouble. In Europe, the number of children who leave school is going up too, though lower than that in the United States.

There are various factors that cause the decrease in educational standards. Some people say that overcrowding and lack of discipline are major factors. Others say that much importance has been given to subjects like art and drama. However, more practical subjects have been neglected. For many teachers, on the other hand, the problem is not of falling standards but of rising expectations of parents and employers. According to these teachers, the demands of parents and employers are getting higher and this is causing the problem.

Whether or not standards in public schools are actually falling, many parents feel that the only way to secure a good education for their children is to send them to private schools, which generally have smaller classes and stricter discipline. The popularity of such schools is growing steadily, despite the high tuition. In the United States, for example, eleven per cent of all school children attend private schools; in Europe, over sixteen per cent do so.

A. Mark the best choice.

1. Line 6, 'illiterate' means _____.
 - a) leaving school at an early age
 - b) having very little knowledge of reading and writing
 - c) becoming an increasing social problem
2. Line 7, 'dropout rates' are _____.
 - a) the number of illiterate people
 - b) a decreasing rate of school leavers
 - c) the number of children leaving school

SCHOOL FOR CHANGE

"It demands your total concentration, energy and capabilities. In return it gives you the best friends you could ever wish for. More important than this, you get the opportunity to discover yourself." According to Heidi Meyer, a former student of Atlantic College, that makes the college such a good place for education.

Atlantic College is the world's first residential sixth form college and this week it is 25 years old. The college was founded at St. Donats Castle, in South Wales, by Kurt Hahn to promote peace and international understanding through education.

Atlantic College students are from 70 countries. They study for the International Baccalaureate diploma. This course was pioneered at the college during the early 1970's and now, it is offered at more than 350 colleges across the world. Six subjects are studied and some British experts are considering it as a replacement for A-levels.

"It is rather like the proposed national curriculum," said Jeff Neuss, the college's head of chemistry. "Everyone has to study his or her native language, a modern foreign language, a humanities subject, a science and maths. As a result of this broad curriculum, all our students become intellectual adults while studying their own subjects. Thus, we have scientists who can write essays, and art specialists who are numerate and competent in science."

Academic work is only one part of the college. It also wants to be part of the community. Therefore, it expects students to undertake community services that include sea rescue and running its 50-acre farm. "We were the first co-ordinated beach and inshore rescue service in Britain and we developed the Atlantic class of inshore lifeboats now used as standard by the RNLI," said Neuss. "We are officially responsible for safety along a 15-mile stretch of coastline. Our lifeboats have saved 150 lives."

Every summer, the students run courses for physically and mentally handicapped young people. They visit London to teach English to Bangladeshi youngsters and run a Youth Training Scheme course for local teenagers. And the students maintain their own college buildings and classrooms.

Atlantic College offers an unusually diverse educational experience, but how are students selected? "Academic ability and school recommendation are of course taken into consideration as in all colleges. However, applicants without the personal qualities of tolerance and a willingness to mix with others can't possibly get into .

40 our college," said Neuss.

The fees are £6,400 a year, but scholarships ensure there is no discrimination on financial grounds. Some countries, such as Norway, allocate funds to allow Ethiopian refugees to attend.

45 The college gives its students a wide perspective on world affairs, said Monica Moreno, a Brazilian: "Immediately after you arrive, a learning process starts which makes you realise your own roots and carries an irresistible force for change and understanding of others."

A. What do the following refer to?

1. 'it' (line 23): _____

2. 'that' (line 24): _____

3. 'they' (line 31): _____

4. 'others' (line 47): other _____

B.

1. According to Heidi Meyer, why is Atlantic College a good place for education?

2. What was the purpose of Kurt Hahn in starting the college?

3. What do students receive when they graduate from Atlantic College?

4. For the students of the college, what is the benefit of taking so many courses?

5. Write two kinds of social work that the students do during summer.

a) _____

b) _____

6. What are the necessary qualities to become a student at Atlantic College?

9

THE OLYMPIC GAMES

When the next Olympic Games begin, satellites will carry TV pictures of the opening ceremony to millions of people thousands of miles away. From their armchairs these people will be able to see their country's athletes competing in events and maybe winning a bronze, silver or even gold medal.

When we consider the size, the spectacle and the commercialism of the modern Olympic Games, it is difficult to remember that they started in Olympia in Greece in 776 BC with only one race, a sprint, for which the prize for the winner was an olive wreath.

The idea of an international Olympic Games was conceived by a Frenchman, Baron Pierre de Coubertin, and, appropriately, the first modern Olympic Games opened in Athens in 1896. Nowadays, major cities compete to host the Olympic Games, not just for the honour the Games bring, but for the vast amount of profit a host country can make.

The games have also become politically important. They can now be seen by nearly every country in the world and are, therefore, an ideal platform for political statements. When Soviet troops invaded Afghanistan in 1980, many countries in the West, including Britain and the United States, boycotted the Moscow Games. In 1984 some countries decided not to send teams to the Los Angeles Games because they felt there was not enough security .

In circumstances like these, the Olympic ideal and spirit comes into question. And for athletes, there is less value in winning a gold medal if the best of the world's athletes are not competing. The question is - how much longer will the Games survive if nations continue to use them as a political platform?

1. What makes it possible to watch Olympic Games on TV?
2. What medals can athletes win?
3. What was the only race in the first Olympic Games?
4. What was the prize given to a winner in the first Olympic Games?

5. Who does the idea of International Olympic Games belong to?
6. Where were the first modern Olympic Games held?
7. Where do Olympic Games take place now?
8. When was Afghanistan invaded?
9. Which countries boycotted the Moscow Games?
10. Why didn't some countries take part in Los Angeles Games?

10

TRAVEL AND TOURISM

5 A report recently prepared for a large international travel service and banking company found out that travel and tourism accounted for almost \$ 2 trillion of the sales in 1987, making it the largest source of employment in the world. Personal travel constituted about two thirds of this , leaving the rest for business and government travel. The biggest spenders on personal travel were the US, Japan, Germany, Britain and France; and in most of these developed countries it was the third largest item of household spending after housing and food.

10 Tour operators say the industry is experiencing "a second revolution". In the first, Europe revolutionised travel with the cheap package holiday within the continent, which transformed many Mediterranean economies. More recently, tourists have begun to travel further away. Until the mid-1980's, the market was limited to the rich on the one hand and the backpackers on the other.

15 Rising incomes and expectations have changed all that. Travellers who are tired of the Mediterranean or those who can afford second holidays in the winter expect the package holiday concept to be extended to intercontinental destinations. By chartering 500-seat jumbo jets and booking hotels and apartments in Florida and the
20 Caribbean, tour operators have made formerly luxury tourist spots available to a lower-income market.

25 Although this poses risks which developing countries have not faced before, the benefits are more immediately apparent. The Caribbean Tourist Association estimates that the industry now provides jobs directly or indirectly for 330,000 people in the region . Others put the figure higher. Some estimates put Third World employment in travel and tourism at more than 50 million.

A. What do the following refer to?

1. 'this*' (line 5): _____
2. 'if (line 7): _____
3. 'those' (line 16): _____
4. 'the region' (line 25): _____

B. Mark the best choice.

1. To account for (line 2) is to _____.
a) prepare b) find out c) constitute
2. Line 14, 'backpackers' are _____.
a) people who travel long distances
b) travellers who are not rich
c) tourists from the Mediterranean

C. Mark the statements as True (T) or False (F).

- _____ 1. In developed countries, more money is spent on personal travel than on business and government travel.
- _____ 2. In most of the developed countries housing and food are the two largest items of household spending.
- _____ J. The cheap continental package holiday is the revolution that is being experienced now.
- _____ 4. Since the mid-1980's, only the rich have been travelling to intercontinental destinations.
- _____ 5. Some tourists do not want to travel to the Mediterranean any more.

D.

1. How did the cheap package holiday affect Mediterranean countries?

2. What have tour operators done to make it possible for the lower-income group to travel to luxury spots?

a) _____

b) _____,

3. What is the benefit of travel and tourism for developing countries?

11

HARRODS: A DIFFERENT WORLD

Welcome to Harrods - a different world for a million reasons. Harrods is the largest store in Europe with goods displayed in 60 windows and 5.5 hectares of selling space. In one year over 14 million purchases are made in the 214 departments where you can buy
5 anything from a pin to an elephant - if you can convince the manager of the Pet Department that you are a suitable elephant owner, that is! Harrods stocks a wide and exciting range of merchandise in every department. It is because of this policy that Harrods can give the customer a choice of goods which is unique in its variety and which
10 no other store can match: Harrods stocks 100 different whiskies, including 57 single malts, 450 different cheeses, 8,000 dresses, 500 types of shins and 9,000 ties to go with them. Moreover, it has a staff of 4,000, rising to 6,000 at Christmas time.

Harrods has a world-wide reputation due to several reasons in
15 addition to those mentioned above. It offers a number of special services to its customers. These include a bank, an insurance department, a travel agency and a theatre ticket agency. Another reason is the range of exported goods. £40 million worth of goods are exported annually from Harrods and the Export Department can deal
20 with any customer purchase or order and will p'ack and send goods to any address in the world. Recently, for example, six bread rolls were sent to New York, a handkerchief to Los Angeles, and a £5,000 chess set to Australia. It is this first-class service that has made Harrods so famous.

25 Harrods sells 5 million different products, not all of which are actually kept in stock in the store itself. To handle this enormous range, a new computerised warehouse is being built. It will be the largest Warehouse in Britain and the second largest in Europe and will deal with a wider range of goods than any other distribution centre in

- 30 the world. Thanks to its modern technology , a customer will be able to order any product (for example, a dining table or a dishwasher) from any assistant in the store. The assistant will be able to check its availability immediately on a computer screen, decide with the customer on a suitable delivery date and time and then pass the order
- 35 directly to the warehouse through the computer. The time of delivery will be guaranteed to within one hour.

A. What do the following refer to?

1. 'them'(line 12): _____
2. 'its modern technology' (line 30): the modern technology of _____

B. Mark the best choice.

1. Line 7, 'merchandise' is another name for _____.
a) stores b) goods c) customers
2. Line 14, to have a 'reputation' is to _____.
a) deal with customers
b) be well-known
c) offer special services

1. What is Harrods' policy?

2. What kind of a change takes place at Harrods at Christmas?

3. Why is the warehouse being built?

4. Write down the stages that take place between the order and the delivery of a product.

- a) _____;
- b) _____;
- c) _____:

WORK MATTERS

Debbie Mason, 24, is a stewardess with Virgin Atlantic. She told Sue Wheeler about her life on Richard Branson's airline and what takes to get on in this high-flying job.

5 Some time ago, I was working in an office when I saw a picture of Richard Branson and read about him starting a new airline, Virgin. I sent him a letter saying I was interested in working for him. After a successful interview, I began their four-week training course. The personnel officers say it's usually obvious at the start whether somebody has the right qualities or not. Personality is very important.
10 You have to be flexible, attractive, and able to smile when duty calls - even if you don't feel like it. Obviously you don't need airline experience, but nursing, or other work with people, is useful.

15 The training course is really common sense although the practical side includes things like life-boat sessions in a swimming pool, fire fighting in a smoke-filled room and learning how to deliver a baby. In reality, though, you end up dealing mainly with travel sickness. The point is you have to be prepared for everything.

20 I work on flights from Gatwick to New York or Miami. Only 10% of my work involves serving people. The emphasis is on safety and that's what we're here for. Before every flight there's a briefing where the crew are asked questions on first-aid and safety.

25 Those who claim that working in such a job makes you look much older than you really are have a point. I also think this job ages you. On flights to New York I'm on board from 2:15 in the afternoon until nearly midnight our time. I have to drink eight pints of water per flight to prevent my body from dehydrating, but it is nearly impossible to consume that much . So my skin is probably suffering. But I think these are minor disadvantages. When we get to New York it's only 6:55 pm American time and we usually go out and have a party!

30 I fly about four or five times in 28 days, which means I work hard for two or three days, then take time off. I get at least eight days off every month, so it doesn't feel like most other fulltime jobs. I get four weeks holiday a year, three of which have to be in the winter. But as one of the advantages of this job is being able to fly with any airline
35 for 10% of the normal cost, I can afford to go to far away places in search of winter sun.

It's a sociable job on board and off. There are only 220 crew members in total so there is a close relationship among us. This means

- 40 things are very friendly and I think it's obvious to the passengers that we're having a good time, which helps them relax. When people leave Virgin to work for other airlines they often miss the intimacy of a small company and come back. But although the social life with Virgin is fabulous, outside it is non-existent. Friends and family know my time off is precious, but even at home I'm sometimes on standby.
- 45 The job puts a strain on any romance. Happily, my boyfriend works for Virgin too, and we choose to work a 'married roster' which means we fly together all the time. It's either this or taking the chance of bumping into each other once in a while.

A. What do the following refer to?

1. 'that much' (line 27): _____
2. 'it' (line 43): _____

B. Mark the best choice.

1. If something 'ages' (line 23) you, it _____.
 - a) makes you look older
 - b) takes most of your time
 - c) affects your age
2. Dehydrate (line 26) is to _____.
 - a) feel ill while flying
 - b) lose too much water
 - c) drink a lot of liquid
3. Line 41, 'intimacy' is _____.
 - a) making something obvious
 - b) working for a small company
 - c) having a close relationship
4. Bump into (line 48) means _____.
 - a) work together
 - b) meet by chance
 - c) find romance
5. The main aim of the training course is to _____.
 - a) train the personnel to fight a fire
 - b) teach the personnel how to deal with travel sickness
 - c) give an idea about all rescue techniques
 - d) prepare the personnel for unexpected things

6. Which of the following is not correct?

- a) Debbie's job is different from many full-time jobs.
- b) She can get a holiday of two weeks in the summer.
- c) She used to work in an office before she got her present job.
- d) She is attractive, flexible and can smile when necessary.

C. Mark the statements as True (T) or False (F).

- _____ 1. A person can work for Virgin Atlantic only if s/he is experienced.
- _____ 2. Debbie can fly cheaply on any airline.

13

LAYING INSOMNIA TO REST

by Susan Gilbert

5 When the task at hand is to get a good night's sleep, trying hard is not the way to succeed. Twisting and turning in search of a comfortable position in bed makes your body do the opposite of what it is supposed to do at night. Instead of slowing down, your heartbeat races. Instead of relaxing, your muscles twitch. You watch the clock and wonder what you're doing wrong.

10 Ten million people in the United States alone are seeking medical help for chronic insomnia - difficulty in falling asleep or staying asleep. For years it has been called a symptom of a number of psychological problems, such as depression, that somehow alter the body's sleep pattern. Sleep specialists agree that psychological problems are a cause of insomnia, but also say bad habits can have the same effect. These include too little daytime activity and, ironically, its opposite, too much exercise.

15 "Insomniacs usually begin losing sleep over some problem, such as a serious illness in the family," says psychiatrist Robert Watson. "But unlike other people," he adds, "they continue to have trouble sleeping - for months, even years." According to Joyce and Kales, two psychiatrists at Penn State University in Pennsylvania, insomniacs
20 present a consistent personality profile. They take things hard, feel they haven't lived "the right kind of life," and are nervous and tense.

25 Psychiatrists say insomniacs share another trait. Thomas Coates of the University of California says, "another characteristic common to insomniacs is that they spend an excessive amount of time thinking about sleep." Contrary to the image of bad sleepers as workaholics, Coates's study indicates that insomniacs spend more time relaxing

than others do. He thinks their relative inactivity during the day may alter the body's "clock." Instead of signalling the brain to slow down at night, the clock calls for more activity.

30 Sleeping late on weekends can also disrupt your body's clock. This is a bad habit Robert Watson makes patients change at the Sleep Disorders Centre. He tells them to rise at the same time each day, even after a night of poor sleep. "After a while," he says, "sleep improves."

35 Even though it tires you out, exercise won't guarantee a sound sleep. If it is too strenuous, especially just before bedtime, it can drive your pulse too high, causing a restless night. Joyce and Kales use moderate afternoon exercise, along with methods such as psychotherapy to treat severe insomniacs.

40 What is the best thing to do on occasional sleepless nights? Forget sleeping pills. They can actually cause insomnia after three days, by altering the brain's chemistry. Watson recommends drinking milk or eating cheese or tuna, because they are rich in natural sleep-producing aids.

45 "There's something to the old-fashioned remedy of drinking warm milk before bedtime," Watson says. Warming it won't make any difference, but it will help you relax.

A. Mark the best choice.

1. Line 22, 'trait' means _____.
a) difficulty b) characteristic c) image
2. Line 35, 'strenuous' means _____.
a) tiring b) restless c) high
3. According to Robert Watson, _____ is a bad habit of insomniacs.
a) the body clock which is disrupted
b) going to bed late on weekends
c) sleeping longer than usual on weekends
d) getting up at the same time every morning
4. Experts do not recommend sleeping pills as they _____.
a) are not natural
b) can change the chemistry of the brain
c) don't contain sleep producing aids
d) Both (a) and (b).

ACUPUNCTURE

Acupuncture, the method of treating diseases by using needles, is based on the Chinese model of health and disease. In this model, there are three main systems in the body. The first two of these are the circulatory and nervous systems as in the western view but, additionally, there is a sort of energy movement.

- 5 The Chinese believe that all forms of life are controlled by two basic movements of energy. One is outward moving and the other is inward moving. When an outward movement reaches its limit, it changes direction and starts to move inwards. Similarly, when an inward movement reaches its limit, it changes direction and starts to
- K) move outwards. The operation is like a pump, and this constant pumping movement may be seen in almost every form of life - the human heart, for example.

- 15 Understanding this idea of energy movement is important when looking at the theory behind Chinese Acupuncture. In this theory . there is a life force which consists of inward and outward moving energy in each person. Inward moving energy tends to increase activity and the other produces calm. The health of the body depends on the balance between the two. If this balance is disturbed, diseases occur.

- 20 The Chinese also discovered that this movement takes place around the body along 26 channels called meridians. Each one of these is connected to a different part of the body and has a different function. Diseases also occur when a meridian is blocked. To help unblock energy channels, doctors place needles in different parts of the body,
- 25 but to cure the disease the needles have to be placed in the right place and have the right depth.

- 30 The earliest acupuncture needles were made of stone. These would have been used when the first books were written about acupuncture 4,500 years ago. The Chinese later used needles made of bone and then of different metals such as iron and silver. Today, they are made of steel.

- 35 The Chinese first believed that the needle itself cured the disease. However, this was before it was discovered that there are certain points along the meridians which are connected to various parts of the body, such as the stomach and the heart.

There are over 800 different needle points in the body. The doctor examines the patient and decides which part of his or her body are over-active or under-active; in other words, the doctor finds out where

40 there is too much or too little energy. When the acupuncture points
have been found, needles are placed in the skin at various depths.
They are then left there for different periods of time, which might be
as short as a few seconds.

A major recent development has been the use of acupuncture in
medical operations. In such cases , it is used instead of anaesthetics, in
45 order to take away the pain felt by the patient. In China today, this use
of acupuncture is extremely common in both major and minor
operations, even operations on the heart.

In the East there are nearly three million doctors who regularly use
acupuncture. It is taught in several Russian universities. And even in
50 Europe and America there are thousands of doctors who have now
learnt how to use acupuncture. The West, however, uses only one part
of the technique intensively; that is, the use of needles to relieve pain
during operations.

A. What do the following refer to?

1. 'these' (line 3): _____
2. 'other' (line 6): _____
3. 'if (line 9): _____
4. 'this theory' (line 14): _____
5. 'the other' (line 17): _____
6. 'these' (line 21): _____
7. 'These' (line 27): _____
8. 'there' (line 41): _____
9. 'which' (line 41): _____
10. 'such cases' (line 44): _____

B. Mark the statements as True (T) or False (F).

- _____ 1. According to the Chinese, the energy movement in the body can be
observed in the working of the human heart.
- _____ 2. Knowing about the energy movement in the body is necessary to
understand how acupuncture works.
- _____ 3. The life force in the theory of acupuncture refers to the balanced
movement of energy in the human body.
- _____ 4. The outward moving energy in the human body makes a person very
active.
- _____ 5. Energy channels in the body are called meridians when they are blocked.

MAISIE'S AMAZING MENAGERIE

An ambulance and the RSPCA were both called to the home of Maisie MacDonald yesterday in the centre of Glasgow. A doctor visiting the house in answer to an emergency call discovered the most bizarre collection of animals who share the house with Maisie. While the ambulance was speeding to the local hospital with 83-year-old Maisie, a team of RSPCA vets and Edinburgh zoo-keepers were trying to solve the problem of who would look after Maisie's pets during her stay in hospital.

John McInnes, the Head Keeper at Edinburgh Zoo, had this to say: 'I have never seen so many different kinds of animals in anybody's home. I am staggered that anyone could look after so many creatures, especially at the age of 83! Maisie has done a wonderful job and none of the animals has been neglected in any way.'

Alan Marsh, 32, an assistant keeper, said, 'She has close to two dozen cats in there and four fairly big dogs, but they're not interested in fighting. It's unusual to find such placid animals as these. They live mainly on the ground floor. The rest of the house is huge. There seems to be something different in every room.'

RSPCA Inspector, Bill Miles, told our reporter, 'We are making every effort to keep Maisie's pets alive and well until she is released from hospital. I think we will have to consider the possibility of fostering many of them with families around Glasgow! The others can be taken to the zoo.'

So what exactly did they find in Maisie's house? There were cages of birds of all shapes and colour going up the three {lights of stairs. A goat and several families of rabbits shared a room on the first floor. The bathroom had been taken over by a pair of mallard ducks and a Canada goose, a giant fish tank in another bedroom housed a collection of terrapins and salamanders. Yet another fish tank held a pair of baby alligators. But the top floor was the most surprising of all. A fully grown tiger was living in the attic! However, the zoo-keepers reported that it was as tame as a kitten and they had no trouble persuading it to get into the van to go to the zoo.

From her hospital bed Maisie, suffering from a broken hip, said, 'My animals are my whole life. I was cleaning out Rajah the tiger's room this morning when he got too playful and knocked me down. I managed to drag myself out and called one of the dogs. I often send him to the post office with a note to get things for me, so this time I sent him with a note asking for help. Everyone has been so kind, but I'm terribly worried about my pets.'

MARGARET MEE

Artist, adventurer, explorer, botanist and rain forest conservationist are some ways of describing Margaret Mee, a remarkable woman who spent the last 36 years painting the Amazon flora.

5 In 1956, at the age of 47, the already accomplished artist made her first Amazon expedition to observe, collect and paint the flowers of the region. Thus began a series of 15 expeditions, the last of which was in May of 1988, successfully to fulfill her dream to paint the flowers of the rare moonflower cactus that grows along the Rio Negro and flowers for only one night a year.

10 It was an inspiring sight to watch this frail-looking woman setting out on an expedition in a dugout canoe with only one Indian guide. She experienced many hardships and deprivations on expeditions but always returned full of enthusiasm and with many notebooks and sketches, as well as plant specimens to grow carefully in her home in
15 Rio de Janeiro until they produced flowers to paint.

She was one of the greatest women explorers of this century. She became known beyond the botanical community and Brazil when, in 1968, she published a beautiful folio book of her paintings entitled
20 'Flowers of the Brazilian Forests' to be followed by another in 1980, 'Flowers of the Amazon'. Her paintings are distributed around the world in botanical institutions, private and public collections.

She fell in love with the Amazon ecosystem as she studied and painted its flora. However, the period during which she worked coincided with the time when the Amazon rain forest was being
25 destroyed. Consequently, Margaret Mee became *ont* of the leading defenders of rain forests and her recent lectures always had a strong conservation message, born out of a deep understanding of the complex ecosystem.

A. What do the following refer to?

1. 'the already accomplished artist' (line 4): _____
2. 'they' (line 15): _____
3. 'another' (line 19): another _____

B. Mark the statements as True (T) or False (F).

- _____ 1. Margaret Mee is 47 years old.
- _____ 2. The purpose of Mee's last expedition to the Amazon was to protect the nature.
- _____ 3. Mee didn't have any difficulties on expeditions.

1. Why is it so difficult to paint the flowers of the rare moonflower cactus?

2. Why did Margaret Mee collect plant specimens?

3. What was happening to the rain forests while Margaret Mee was working in the Amazon?

17

YOUR HELPING HAND CAN TURN DESPAIR INTO HOPE

It is difficult for people living in a prosperous country to imagine what it is like to grow up in one of the poor countries in Africa, Latin America and Asia.

- 5 In many developing countries, millions of children die from malnutrition and disease before they even reach adulthood. For those who survive, life is cruelly hard. They live in the most basic kind of hut. Their water for drinking, washing and cooking comes from the local river or stream. They have to work from dawn till dusk, almost from the time they can walk. And for much of the year they go
- 10 hungry. An average family income is \$ 10 to 15 a month. Worse still, they lack the opportunity to improve their lives because there is no education or training in practical skills. This is what we in 'World Family' are working to change - and we need your help to succeed.

W h a t We Are Doing

15 In 25 countries of Africa, Asia, Central and South America we are giving poor people a chance to improve their own lives through setting up small-scale development projects. We are helping to build schools, dig wells, provide medicines and - most important of **all** -
20 teach the skills the people need. To give just one example, in the Embu area of Kenya we are helping to equip and run a mobile clinic to improve child care; providing textbooks for the local school; helping to build tanks to conserve rainwater; and training local people in agricultural and income generating skills.

25 We know that we cannot really help the world's poor by giving them handouts. Nor can we impose preconceived Western solutions on them since the solutions which are forced upon people turn out to be useless in many cases. Our approach is to help people solve their problems in their own way.

What You C a n Do To Help

30 Today we are asking you to join our worldwide family and to hold out a helping hand to a child who urgently needs it. You can do it now, by agreeing to sponsor a child. Your sponsorship can give them the chance to go to school or provide some of the other things that many of us take for granted . That is, we never question the availability
35 of these things because we have no doubts about their existence. In addition to this, it can give their families the chance to learn basic hygiene and health care. And it can start their communities on the long and gradual process of raising their living standards.

40 Because you are sponsoring one particular youngster, you'll have the joy of seeing the difference that your help makes. You'll see the child growing up - learning, developing and gaining in strength and confidence over the years - through letters, photographs and regular progress reports.

45 You can play a vital role in our work. As a sponsor, the help that you give will go towards practical development work to benefit a whole family and community. That's because we realise that we cannot improve the life of an individual child without supporting and strengthening the family, and raising the living standards of the community as a whole.

EARTHQUAKES

Earthquakes are probably one of the most frightening and destructive happenings of nature that man experiences. The effects of an earthquake are often terrible. Earthquakes have caused the death of many human beings, much suffering, and great damage. Today, the study of earthquakes has grown greatly as scientists all over the world study the causes of earthquakes. Scientists hope that their studies will improve the ways of predicting earthquakes and also develop ways to reduce their destructive effects.

The scientific study of earthquakes is somewhat new. Until the 18th century, few factual descriptions of earthquakes were recorded. In general, people did not understand the cause of earthquakes. Many believed that they were a punishment from God. One early theory was that earthquakes were caused by air rushing out of caverns deep in the interior of the earth.

On November 1, 1755, a serious earthquake occurred near Lisbon, Portugal. Shocks from the quake were felt in many parts of the world. After the quake, Portuguese priests were asked to observe the effects and to make written records. These records were the first scientific steps to write down the effects of an earthquake. Since that time, detailed records have been kept of almost every major earthquake.

Most earthquakes occur in areas around the Pacific Ocean. This belt of areas is called the 'ring of fire' and includes the Pacific coasts of North and South America, the Aleutian Islands, Japan, Southeast Asia, and Australia. Half a million people within the 'ring of fire' have died because of earthquakes and much valuable property has been severely damaged or destroyed.

An earthquake is the oscillatory, sometimes violent, movement of the earth's surface that comes after a release of energy in the crust of the earth. Most destructive quakes are caused by the dislocation of the crust. Forces from beneath the surface of the earth cause the crust to bend and then break and the rocks on the surface move into a new position. The breaking of the rocks causes vibrations called 'seismic waves'. These vibrations travel from the source of the earthquake to distant places along the surface of the earth. The seismic waves cause the entire planet to tremble or ring like a bell.

The vibrations produced by earthquakes are discovered, recorded, and measured by instruments called seismographs. Vibrations are of two general types: surface waves and body waves. Surface waves travel along the earth's surface and body waves travel through the

40 earth. Surface waves usually have the strongest vibrations and probably cause most of the damage done by earthquakes.

Currently, scientists are making studies to predict earthquakes. At the present time, scientists do not have the knowledge required to predict the time and size of earthquakes. However, a large group of
45 scientists at the National Centre for Earthquake Research in California, has been able to predict the areas where earthquakes might occur. Research at the centre about the physical and chemical nature of rocks and their behaviour under the force of an earthquake will help engineers to design and build structure for areas that often suffer from
50 earthquakes.

A. Complete the following sentences.

1. Line 48, 'their behaviour' refers to the behaviour of_____.
2. The 'ring of fire' is the belt of areas around the Pacific Ocean where_____
3. Seismographs_____ the vibrations caused by earthquakes.
- 4 One characteristic of surface waves, which cause most of the damage done by earthquakes, is that they_____.

B. Mark the statements as True (T) or False (F).

- _____ 1. Scientists hope to reduce the harmful effects of earthquakes by studying the nature.
- _____ 2. Scientists at the National Centre for Earthquake Research in California can predict the time and size of earthquakes.

C. Mark the best choice.

1. Line 13, 'caverns' are probably_____.
 - a) earthquakes occurring in the interior of the earth
 - b)-strong winds caused by earthquakes
 - c) rivers and lakes in major earthquake areas
 - d) deep holes under the ground

19

VITAMINS

In the early days of sea travel, seamen on long voyages lived exclusively on salted meat and biscuits. Many of them died of scurvy, a disease of the blood which harms the teeth and causes white spots on the skin and general exhaustion. On one occasion, in 1535, an English ship arrived in Newfoundland with its sailors desperately ill. The men were saved by Iroquois Indians who gave them vegetable leaves to eat. Gradually it was realized that scurvy was caused by some lack in the sailors' diet although nothing was known about vitamins at that time and Captain Cook, on his long voyages of discovery to Australia and New Zealand, established the fact that scurvy could be warded off by making the sailors eat fresh fruit and vegetables.

Nowadays, it is understood that a diet which contains nothing harmful may result in serious diseases if certain important elements are missing. These elements are called 'vitamins'. Quite a number of such substances are known and they are given letters to identify them; A, B, C, D, and so on. Different diseases are associated with lack of particular vitamins. Even a slight lack of vitamin C, for example, the vitamin most plentiful in fresh fruit and vegetables, is thought to increase significantly the possibility of catching cold easily.

The vitamins necessary for a healthy body are normally supplied by a good mixed diet including a variety of fruit and green vegetables. However, when people try to live on a very restricted diet, for example, during long periods of religious fasting, i.e. when people stop eating for religious purposes, or when trying to lose weight, it is necessary to make special efforts to supply the missing vitamins.

A. What do the following refer to?

1. 'them' (line 6): _____
2. 'such substances' (line 15): _____

B. Mark the best choice.

1. Line 2, 'exclusively' means _____.
a) expensively b) only c) luxuriously d) rarely
2. Line 10, 'warded off' means _____.
a) encouraged b) observed c) supplied d) avoided

LIFE IN SPACE

We haven't conquered space. Not yet. We have sent some 20 men on camping trips to the moon, and the USA and the Soviet Union have sent people to spend restricted lives orbiting Earth. Several trips have been made into space to show that ordinary (non- astronaut) scientists
5 can live and work in space - for a few days only. All these are marvellous technical and human achievements, but none of them involves living independently in space. The Russians need food and even oxygen sent up from Earth. It is only in fiction, and in space
10 movies, that people spend long periods living more or less normally deep in space.

But in about a decade - say, by the year 2010 - this may have changed. There could be settlements in space where adventurers would lead normal lives. The idea of a space settlement seems like science fiction - but it is not. It is based on plans produced by efficient
15 people: engineers and scientists, headed by Gerard O'Neill of Princeton University. These people are keen on space research, of course, but they are not dreamers.

The settlement is a large wheel, a tube more than 400 ft in diameter bent into a ring. The wheel spins gently once a minute. It is this gentle
20 circular movement that makes this settlement different from the space shuttles, because the spin produces a force that feels like gravity. Every space trip has shown that the human body needs gravity if it is to continue functioning normally. Nobody would want to live for long in a space settlement where everything - people and equipment and
25 the eggs they were trying to fry - moved weightlessly around.

With gravity, life in space can be based on our experience on Earth. We can have farming and factories and houses and meeting - places that are not designed by guesswork. The need for gravity is one of the reasons for building a space colony, rather than sending settlers to an
30 existing location such as the moon or the planets. The moon is inhospitable ; its gravity is tiny - and any one place on the moon has 14 days of sunlight followed by 14 of night, which makes agriculture impossible and means solar energy cannot be used.

In the settlement, which floats in permanent sunlight, the
35 day-length is controlled by a huge mirror about a mile in diameter. This mirror floats weightlessly above the ring of the settlement. The sunlight is constant during the 'daytime', so farming is far more productive than it can be on Earth. The aim is to provide a diet similar to that on Earth, but with less 'fresh meat. The farms will be arranged

40 in layers with fish ponds and rice paddies on the top layer; wheat below; vegetables, soya, and maize on the lower layers.

The population of the settlement is fixed at about 10,000 people. In this way, farm output can be accurately planned: about 64 square metres of vegetables, fruits and grains will be needed for each person, 45 and just over five square metres of grass land. The place where the people live won't look very different from modern small towns on Earth, and this is deliberate. Science fiction films show only huge glass tower blocks, but real-life space settlers won't want these. Throughout history, settlers have tried to put up buildings like the 50 ones they left behind, because these are familiar. Space settlers will do the same.

And where would the settlement be? "At L5, of course," say the experts. This reference describes a point on the moon's orbit around Earth, equidistant from the moon and Earth, where the gravitational 55 forces of the two bodies balance. (The L stands for Lagrange, a French mathematician who listed a number of 'balance' points.) Those who intend to settle in space have formed an L5 society. And the members are not at all impractical eccentrics.

A. Line 55, 'the two bodies' refers to_____.

B. Mark the best choice.

1. To spin (line 19) means to_____.

- a) live in a wheel of over 400 ft in diameter
- b) turn around a central point
- c) be different from other space shuttles
- d) produce a force similar to gravity

2. Lines 30-31, 'The moon is inhospitable' means it is_____.

- a) an ideal place for settlers
- b) a location that already exists
- c) unsuitable for a settlement
- d) not easy to find its location

3. Line 43, 'farm output' is_____.

- a) what is produced on a farm
- b) an agricultural settlement area
- c) accurate planning on a farm
- d) the amount of grass land for each person

SPACE TOURISM

Japan's Shimizu Corporation is making plans for the day that there are regular flights into space, not by astronauts, but by tourists and sightseers. Shimizu's space project office prepared the plan for a \$28 billion space hotel with the technical guidance of Bell & Trotti of the United States. It is not the first proposal of its kind. Since the first days of space exploration, people have speculated about the possibility of cosmic pleasure trips. In 1967, the founder of the Hilton hotel chain, Barron Hilton, told the American Astronautical Society that he hoped to see the first orbital Hilton in his lifetime.

In spite of the advances in technology, Japan's National Space Development Agency is doubtful about the future of space travel. Shimizu, however, is optimistic and is even planning to put a new generation of space planes into operation around the year 2010 to start commercial space travel and tourism.

Space planes will replace the current generation of spacecraft. Not only will they be able to take off and land like jets, but they will also have the power to leave the atmosphere altogether. The United States, France, Britain, Germany, Japan and the Soviet Union are all planning hypersonic space planes.

There are common features to the designs of space planes; they will use a single booster stage to reach their orbit. They will be totally re-usable and will be propelled to hypersonic speeds by revolutionary engines that can take in oxygen from the atmosphere or on-board supplies. Current generation spacecraft are limited by the vast amount of fuel. It takes about five tonnes of fuel to put a spacecraft into orbit. But by using a rocket motor that can take in oxygen from the atmosphere, the burden of liquid oxygen can be cut down to the amount that is required when the air becomes too rare .

A cost effective and safe aero-spaceplane will mark a major turning point for the space industry and the birth of space-tourism. Then the first destination for the rich, the fashionable and the adventurous will be the space hotel, a space station in low earth orbit. As the aero-spaceplane closes in on Tokyo Orbital International, passengers will witness a hotel that looks quite unlike any on Earth because the need to build it piece by piece - by assembling a series of prefabricated modules - makes it an odd-shaped structure.

Space tourism will not be cheap - estimates of the cost range from tens of thousands to millions of dollars, depending on the trip, timescale and available technology. Forinstance, technical consultant

40 David Ashford and Dr. Patrick Collins of Imperial College estimate that the cost per seat could fall from \$4 million in the space shuttle to \$ 10,000 in a 'spacebus'.

As for whether space-tourism will occur at all, we can draw from the example of air travel. In the past 60 years, the number of people
45 who crossed the Atlantic has grown from a handful of people to some 25 million. Once the new generation of space vehicles under development take to the skies, the prospect of commercial space flights within the next 60 years seems inevitable.

A. What do the following refer to?

1. 'they' (line 16): _____
2. 'any' (line 34): _____

B. Mark the best choice.

1. Shimizu Corporation _____.
 - a) is the first to propose a hotel in space
 - b) is more optimistic about space travel than the Japanese National Space Development Agency
 - c) is able to plan a space hotel without assistance
 - d) believes that cosmic pleasure trips will be possible in this century
2. The new generation of spacecraft will _____.
 - a) have to stay within the earth's atmosphere
 - b) be designed by many countries working together
 - c) have to carry large amounts of fuel
 - d) be able to get oxygen from the atmosphere

C. Mark the statements as True (T) or False (F).

- _____ 1. The space hotel will look odd since it will have to be made up of a series of prefabricated modules.
- _____ 2. One of the factors which will determine the cost of space tourism will be the available technology.
- _____ 3. It will be cheaper to travel by spacebus than by space shuttle.
- _____ 4. Within the next 60 years 25 million people will have made space flights.

---, II

ADVERTISING

As a marketing term, 'promotion' is a company's efforts to influence customers to buy. A company may have a fine product or service to offer and it may be priced correctly, but these won't mean much unless it reaches its target market. Promotion, which aims to reach the customers in that market and persuade them to buy, includes the elements of giving information and influencing customer behaviour. In other words, it includes all selling activities. The most important of these activities are personal selling, sales promotion, public relations and advertising. Most companies combine these activities to communicate with their customers, but more money is spent on advertising than on other types of promotion.

All of us have been influenced to buy certain products because of some form of advertising. It is universally accepted that advertising conveys selling messages better than other techniques in certain situations.

As a tool of marketing, advertising generally serves the following purposes: to persuade present customers to increase their buying, to slow down the flow of present customers away from the product and to increase the flow of customers toward the advertised product. But the overall purpose of advertising is to influence the level of product sales and, as a result, to increase the manufacturer's profits.

To determine the effectiveness of advertising, its results should be evaluated. A practical way to measure its effectiveness is through increased sales volume. Sales for a period of time following an advertising campaign can be compared with those for a previous period.

Advertising can be classified into certain types, depending on its use and purpose. The first type is product advertising, which is designed to sell a definite and identified product. It usually describes the product's features and good qualities and it may even emphasize its price. Product advertising is used to sell both consumer and industrial goods, which have different marketing characteristics. The second type is institutional advertising. This type tries to create a favourable attitude toward the company offering to sell a product.

This type of advertising may not influence immediate sales but it tries to increase the sales in the long-run. For example, a manufacturer may run an institutional advertisement to tell the public about the company's efforts to reduce air pollution. Big companies can afford to spend money on institutional advertising. Another type of advertising

40 is national advertising, which is used to sell nationally distributed
products by using a medium or nationwide circulation. It is generally
associated with advertising by the manufacturer rather than by a
retailer or local advertiser. The fourth type is local advertising. It is
45 placed by a local merchant and differs from national advertising by
being more specific in terms of price, quality and quantity. In national
advertising, the purpose is to build a general demand for a product that
may be sold in many stores. In local advertising, the stress is on the
store where the product is sold. Finally, there is corrective advertising,
50 which takes place to correct specific false or misleading claims that
might have been made in previous advertising. These corrective
advertisements are generally ordered by courts to rectify earlier
misleading advertisements.

For an advertising message to reach its audience, some type of
carrier must be chosen. In the field of advertising, these carriers are
55 called 'media'. The success of advertising depends both on the
message and the medium selected. The media most commonly used
for advertising purposes are newspapers, magazines, direct mail, radio
and television. Television is a very popular medium because it has the
advantage of combining sight, sound, motion and demonstration. And
60 for most viewers, it does all this in colour, which is a unique
combination for advertising. Another advantage of TV is that it
appeals to all age groups. On the other hand, its message is short-lived
and production costs are high. Expenditures (*or* TV advertising are the
second largest after the newspaper, which is the leading medium.

A. What do the following refer to?

1. 'those' (line 25): _____
2. 'If' (line 29): _____

B. Mark the best choice.

1. To convey (line 14) means to _____.
a) change b) influence c) communicate d) combine
2. To rectify (line 51) means to _____.
a) make a false claim b) correct c) advertise d) distribute
3. Promotion
a) is having a fine and correctly priced product or service
b) includes all selling activities
c) is a very popular type of advertising
d) is the most important activity of companies

WINDS

Like all gases, air constantly moves. Masses of air, warm or cool, wet or dry, move across land and sea and bring about weather changes. During this process, one air mass replaces another.

When air is heated, it expands. Hot air is less dense than cold air. For this reason, it rises and leaves behind an area of low pressure. Unlike hot air, cold air has a large density. Instead of rising, it presses heavily on the earth's surface. Therefore, it produces an area of high pressure. Since gases always try to move from high to low pressure, winds are caused by the flow of cold air which tries to replace the rising hot air.

Why is there such a difference in the temperature of the air at various places on earth? There are two major global air patterns on Earth. One is from the poles towards the equator and the other is from the equator towards the poles. On the earth's surface, the poles are always cold and the equator hot. Cold air comes down from the polar regions. Since the distance from the poles to the equator is so great, the cold air from the poles warms up on the way. Similarly, the hot equatorial air becomes cooler on its way to the poles and this is what causes the difference in temperature. These winds do not blow in the north-south direction, but they are diverted. The rotation of the earth is the cause of this change in direction. These two major global air patterns cover thousands of kilometres.

Besides these air patterns, there are smaller cycles which cover hundreds of kilometres. These smaller air patterns form because of smaller changes in temperature. For example, the air above the ground is heated by the ground whereas the air above the sea is colder. As a result, the cool air moves from the sea to the land, forming a 'sea breeze'. During the night, the land is cooler than the sea (since water heats up and cools down more slowly) and the breeze blows from the land to the sea. This wind is called a 'land breeze'.

Winds that blow very powerfully can develop into storms, which can turn into hurricanes. Actually, no one knows why some of the storms become hurricanes and others do not. A hurricane forms over tropical seas, it moves, and when it reaches the land or a colder part of the sea, it slowly diminishes, dies out. A hurricane can be 1000 kilometres in diameter. The centre of the hurricane is called the 'eye'. The speed of the wind in a hurricane can range from 150 kph. (kilometres per hour) to 300 kph. All hurricanes originate close to the equator. Hurricanes in the Pacific and Indian Oceans are known as

40 'typhoons'.

Sometimes storms can also develop into tornadoes. These resemble hurricanes but form over land. Tornadoes can occur anywhere on Earth but are mostly observed over the central United States. A tornado, like a hurricane, is a strong wind spinning and turning around a core. Unlike a hurricane, it contains a partial vacuum.

45 The wind speed of a tornado is about 300 kph., but sometimes it can reach 800 kph. Scientists do not know exactly how tornadoes form. It is thought that when warm moist air meets the cold air from the north, it causes clouds to form and storms to develop. This brings
50 about an uprush of warm air, which is known as a tornado. When a tornado passes over a house, for example, the low pressure at the centre causes the air in the house to expand suddenly and, as a result, the building explodes.

A. What do the following refer to?

1. 'it' (line 5): _____
2. These' (line 41): _____

B. Mark the best choice.

1. Line 20, 'diverted' probably means _____.
 - a) directed
 - b) changed
 - c) blown
 - d) rotated
2. Hot air rises because it _____.
 - a) leaves behind an area of low pressure
 - b) is not as dense as cold air
 - c) produces areas of high pressure
 - d) has a large density
3. Winds form due to the _____.
 - a) flow of cold air into a low pressure area
 - b) fact that hot air presses on the earth's surface
 - c) flow of hot air into a high pressure area
 - d) fact that air is a gas

DYNAMITE

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40 put 1,000 pounds of dynamite into holes under the cement block. When the dynamite detonated, the block moved into the right place with a roar that could be heard miles away.

A. What do the following refer to?

1. 'these' (line 8): _____
2. 'they' (line 26): _____
3. 'it' (line 38): _____

B. What do the following mean?

1. 'blasting' (line 6): _____
2. 'quarries' (line 13): _____
3. 'precision' (line 24): _____

C. Mark the best choice.

Line 42, a 'roar' is probably a(n) _____.

- a) machine b) loud noise c) explosive material d) cement block

D. Mark the statements as True (T), False (F) or No Information (NI).

- _____ 1. When dynamite was first used, people did not place the explosive in holes in the base of a building.
- _____ 2. The United States uses more dynamite than any other country.
- _____ 3. Most of the dynamite that is being consumed in the United States is used in construction work.
- _____ 4. Controlled explosions can be used underground in cities.
- _____ 5. The use of dynamite in the opening of the tunnel in Colorado was unsuccessful because there was a major error in calculation.
- _____ 6. Borgium used dynamite to construct a tunnel at Mount Rushmore.
- _____ 7. When Sam Russell first explained his plan for blocking the water, everybody thought it was an excellent idea.

E.

1. Why is dynamite the most often used explosive?
2. What happens inside a dynamite stick when it explodes?
3. Why was it necessary to change the direction of the Saguenay River?

A LAND OF IMMIGRANTS

The USA is a land of immigrants. Between 1815 and 1914, the world witnessed **the** greatest peaceful migration in its history: 35 million people, mostly Europeans, left their homelands to start new lives in America. Why did these people risk everything by leaving their homes and families to see what the New World had to offer? How had the Old World disappointed them?

First, what forced emigrants to make the momentous decision to leave? One major cause of the exodus among European people was the rise in population which led to 'land hunger'. Another was politics.

Nationalism brought about increased taxation and the growth of armies, and many young men fled eastern Europe to avoid military service. Also, the failure of the liberal revolutions in Europe caused the departure of hundreds of thousands of refugees.

Physical hunger provided another pressing reason. Between 1845 and 1848, the terrible potato famine in Ireland ended in the deaths of one million Irish people and the emigration of a further million who wished to escape starvation. Following the collapse of the economy of southern Italy in the 1860s, hundreds of thousands decided to start afresh in America.

In short, people chose to leave their homes for social, economic and religious reasons. As a result, by 1890 among a total population of 63 million, there were about nine million foreign-born Americans.

But what were the attractions? First of all, there was the promise of land which was so scarce in Europe. Next, factories were calling out for workers, and pay and working conditions were much better than back home. Men were needed to build the long railroads, and settlers were needed to populate new towns and develop commerce. There was the space for religious communities to practise their faith in peace and comparative isolation.

This immigration meant that by around the 1850's Americans of non-English origin had started to outnumber those of English extraction. As we know, there were losers. To start with, there were those immigrants who were brought to the land by force, the slaves, to be used as a source of cheap labour for the tobacco plantations of the South. Nor should we forget the equally awful fate of the American Indians. By 1860, there were 27 million free whites, four million slaves and a mere 488,000 free blacks.

Nowadays, the USA is still seen by millions as the Promised Land. Gone are the days when you could buy US citizenship for one dollar.

Yet, even though entry is strictly limited, refugees continue to find freedom and people from poorer countries a better way of life. As always, it remains a magnet to the ambitious and the energetic who are ready to commit themselves to the land that gives them a second chance.

A. Find words or phrases in the text which mean the same as the following.

1. great migration of masses (paragraph 2): _____
2. important and urgent (paragraph 3): _____
3. failure (paragraph 3): _____;
4. not much or enough (paragraph 5): _____
5. origin (paragraph 6): _____

B. Mark the best choice.

1. The lives of the 19th century European people were difficult because _____.
 - a) of the peaceful relationships among the nations of Europe
 - b) the population was going down gradually
 - c) there were too many of them, which caused a shortage of land
 - d) they had decided to leave their homelands for the USA
2. What is not given as a reason for emigration in the text?
 - a) Avoidance of military service.
 - b) Politics.
 - c) The search for adventure.
 - d) Economy.
3. Approximately how much of the American population was made up of foreign-born Americans in 1890?
 - a) One seventh.
 - b) One third.
 - c) A half.
 - d) One fifth.
4. Which of the following is mentioned as an attraction of the USA in the text?
 - a) There were opportunities to get a good education.
 - b) Jobs were available.
 - c) People could lead a long and healthy life.
 - d) All of the above.
5. Which of the following is **not** true?
 - a) The story of the American Indians is as sad as that of the slaves.
 - b) Despite the strictly limited entry, people still go to the USA hoping to find a better life.
 - c) Religious communities' found peace and isolation in the USA.
 - d) Millions of people, most of whom were Europeans, migrated to the USA in the 18th century.

C.

1. What were the results of the potato famine that took place in Ireland between 1845 and 1848?
a) _____! _____: _____!
b) _____
2. Why were more men needed in the USA?
a) _____
b) _____
3. Why were the slaves brought to the USA?

26

TERESINA

From a radio programme.

This week's programme of *Facts and Opinions* is about Teresina, one of the most rapidly developing cities in the southern hemisphere. Teresina was a small sleepy city of just over 500,000 people until the government discovered huge deposits of bauxite, tin and other mineral reserves in the mountainous regions of the south-east. Within months this discovery had a tremendous effect on the city and the life of its inhabitants, who were soon having difficulty adapting themselves to the sophisticated demands of the late twentieth century.

People used to call Teresina the Garden of the South because of its tree-lined avenues and 50 public parks. Anyone visiting the city today will find it difficult to understand how it earned that name. Nowadays, the city is rapidly becoming a megapolis, not much different from many other great cities in the Third World. Since the discoveries in the south-east, thousands of people from all over the country have flooded into the city. The population, according to statistics released last year, has quadrupled in the last twenty years. Over half of these people live in the shanty towns* on the hills surrounding the city or in the spreading suburbs, without electricity or a proper sewage system. But there is also incredible wealth in the city. Luxurious apartment blocks are springing up all over the city, as well as extravagant houses with swimming pools.

Nowhere can the effects of this sudden and rapid change be better seen than in the transformation of the city's open public places.

25 Nowadays, only five of the parks and squares survive. In their place
eight-lane highways, viaducts, tunnels and complex intersections have
now invaded this formerly tranquil city. And the green forests around
the city that once were full of wildlife of all kinds no longer exist
except where a few small clumps of trees remind us of what it used to
belike.

30 Due to the dramatic increase in population, over 700,000 vehicles
are on the streets of Teresina today. Accident rates are terrifying. The
World Traffic Organisation (WTO) believes that the city has one of
the highest accident records in the world. The old people of Teresina
do not want to think of what has happened to their once beautiful city
35 but prefer to remember the days when there were plenty of fish in the
rivers and streams, plenty of rice in the fields, and herds of
water-buffaloes that grazed peacefully around.

* Shanty towns are areas where poor people live in dwellings built from tin, cardboard, or another material which is not very strong.

A. What do the following refer to?

1. 'that name' (line 11): _____
2. 'in their place' (line 24): in the place of _____

B. Mark the best choice.

1. Line 7, 'inhabitants' are _____.
 - a) cities where rapid development takes place
 - b) people who discover something
 - c) people living in a place regularly
 - d) effects that are difficult to adapt to

2. To spring up (line 20) means to _____.
 - a) release
 - b) appear
 - c) lack
 - d) rent

3. A water-buffalo (line 37) _____.
 - a) is a kind of animal
 - b) is something that old people have
 - c) pollutes the rivers and streams
 - d) is a kind of rice

THE WHALE

Whales belong to a group of mammals called catecea. Unlike fish, they are mammals; that is, they are air-breathing, warm-blooded animals which nourish (feed) their young with milk. Their sizes vary from the small porpoise whale - less than 1.5 metres long - to the largest animal that has ever lived on earth - the blue whale. It can exceed 30 metres in length and 150 tonnes in weight. If such a whale accidentally swam ashore and were unable to get back to the sea, it would be crushed to death by its own weight.

The whale looks like a fish but there are important differences in its external structure. Its tail consists of a pair of large, flat, horizontal paddles, whereas the tail of a fish is vertical. Fish breathe the oxygen dissolved in water through their gills. Gills are found on both sides of the head and contain blood vessels which pick up oxygen as water passes through them. Unlike fish, whales have lungs and, for this reason, have to come to the surface to breathe in or release air. Most large whales can stay underwater for up to 20 minutes. The sperm whale, however, is an exception. It can dive to 3000 metres and stay below for more than an hour. Unlike fish, whales have blow holes, or nostrils, on top of their large heads. A whale breathes out through this blow hole. When the breath is released, it condenses in the air making a cloud of moisture or a spout.

The whale's skin is almost hairless, smooth and shiny and it covers a thick layer of fat called 'blubber'. This is up to 30 cm in thickness and serves to conserve heat and body fluids. The eyes seem very small compared to its huge body. Nevertheless, whales have very good vision. They have no external ears, yet their hearing is excellent.

There are two main groups of whale: toothed and toothless. The former includes the dolphin, the porpoise, the killer whale and the sperm whale. Some examples of the latter are the grey, the humpback, the right and the blue whales. Toothed whales have rows of carved teeth which they use to grasp their food. Some large toothed species, like the killer, feed on other large mammals such as the porpoise while others- e.g. the sperm whale - eat smaller forms of marine life like octopuses and squids.

The toothless whales, or 'baleen whales', have no functional teeth. Instead, they have brushy plates of whalebone called 'baleen' hanging from the upper jaw. These strain small fishes from the water. In other words, these whales feed on marine animals that are caught by a filtering process. Their diet consists mainly of 'krill', which can be found in masses in the oceans of the world. Whales live in oceans throughout the world, they travel in schools-, that is, in groups, and often migrate thousands of miles.

The whale has been hunted by man for many centuries mainly for its blubber. This substance is used in cosmetics, the manufacture of margarine and the softening of leather. The waxy substance called 'spermaceti', which is found in the head of a sperm whale, for instance, is used to make soap. 'Ambergris', another waxy substance found in every whale's intestine, is used in the manufacture of perfume, where it serves to improve the scent.

The whale has also been hunted for its meat, which is eaten by both humans and animals. In fact, in Japan it has been a major source of protein for many centuries. The commercial value of the whale has led to a serious decrease in the whale population and it is unfortunate that in the near future, extinction of some types of whales seems inevitable.

A. Mark the statements as True (T) or False (F).

- ___ 1. The smallest whale is the porpoise whale.
- ___ 2. Most whales can stay underwater for more than an hour.
- ___ 3. Blubber is a layer of fat that covers the skin of a whale.
- ___ 4. Porpoises eat sperm whales, octopuses and squids.
- ___ 5. The grey whale is a member of the baleen group.
- ___ 6. 'Krill' is part of a whale's body.
- ___ 7. Whales prefer to live alone.
- ___ 8. 'Spermaceti' and 'ambergris' are waxy substances found in all whales.
- ___ 9. Whale meat is used in the production of animal food.
- ___ 10. All whales will soon become extinct.

B. Fill in each box with one word only.

Differences Between the Fish and the Whale

Fish	Whale	<i>position of the tail</i>	<i>organs for breathing</i>	and
		nostrils		

C. Use words from the passage to complete the following chart.

Mammals

Whales

the right whale

D. Fill each blank with a suitable adjective that describes each item.

Physical features of the whale:

skin: _____

eyes: _____

vision: _____

hearing: _____

DISTRIBUTION OF NUTRIENTS IN PLANTS

It is generally believed by scientists that millions of years ago plant life originated in the water, and that new forms of plant life that could live on land developed gradually. This would not have been possible if an effective transport system had not evolved inside the plant to distribute food, water, and minerals. Plants use both their leaves and roots to obtain food. The leaves, for example, capture the energy from the sunlight and hold it for future use in molecules of sugar. This sugar is later transported to the various other growing parts - the young branches, the growing fruit, the stem, and the roots. The roots, on the other hand, pick up water and minerals from the soil. The sap, the liquid in a plant, transports them to the leaves and the other growing parts. Since nutrients often have to be distributed over long distances, an efficient transport system is necessary. One of the best examples of this transport system can be seen in the giant sequoia tree, in California. This tree sends down to the ends of its roots sugars that are made in the leaves hundreds of feet up in the air. And the ends of the roots may be a hundred feet away from the base of the tree. Plants have three systems that make possible the interchange of substances among various parts of the plant body. These are the food transport system, the water transport system and the air transport system.

The food transport system is the most delicate of the three. It can be easily damaged because it is alive. Wounds, heat and exposure of the plant to toxic chemicals all damage the system that transports food. If you cut a branch and put it in water, it may seem alive for many days or even weeks; yet the food transport system stops functioning soon after the branch is cut from the tree.

The water transport system is much less delicate than the food transport system. Water transport takes place in long strong tubes called capillaries. These consist of dead cells. A German scientist once cut down a tree and then placed the base in a tub containing picric acid. The yellow, poisonous acid moved up to the top of the tree. There it killed the leaves, but the water transport system itself was not affected by the poison.

When you cut through a tree trunk or branch, you notice two different tissues: the bark and the wood. The food transport system flows through the bark and the water transport system through the wood. These transport tissues wear out as the tree grows, so they are continually replaced. Every year new water-transporting tubes appear in new bark. The tissue responsible for this rejuvenation is a very thin

40 layer of cells. These cells form a tissue called the cambium. Being conveniently located between the wood and the bark, the cambium can easily receive the water, minerals and food necessary for producing fresh bark and wood tissue.

The air transport system consists of air spaces between cells.

45 Unlike desert plants, marsh plants have especially well developed air transport systems. This is mainly because marsh plants live on soft, wet land. So their roots are not exposed to much oxygen. The leaves of marsh plants can transport oxygen from the stomata, which are small openings on the surface of a leaf, through the stem to the roots.

50 It is because of these transport systems that a plant can function as the whole organism that it is.

A. What do the following refer to?

1. "if (line 7): _____
2. 'them' (line 11): _____
3. 'these' (line 29): _____
4. 'there' (line 32): _____

B. Mark the best choice.

1. Line 21, 'delicate' probably means something that _____.
 - a) can be easily damaged
 - b) is alive
 - c) is damaged
 - d) is toxic
2. Line 39, 'rejuvenation' probably means the _____.
 - a) production of new cells
 - b) destruction of live cells
 - c) transportation of water
 - d) wearing out of the bark and wood tissue
3. The function of the transport system is to _____.
 - a) evolve inside the plant
 - b) distribute food, water and minerals
 - c) develop land plants
 - d) obtain sugar from the green leaves

U.S. PUBLIC SCHOOLS

There are many people in the U.S. today who are not satisfied with the education that their children are receiving in the public schools. They are very worried about a number of developments that are taking place there. However, not all of these people are worried about the same things. In fact, they often do not agree about the problems in public education.

One group of people is concerned about the quality of the education which young people are receiving. According to these parents, their children are not learning enough in school, and some researchers agree with them. For example, according to recent studies, the number of high school students who cannot read is increasing not decreasing. Also the number of students who have difficulty with simple mathematics is increasing. Even students who graduate from high school and go to college show a depressing lack of knowledge. In a geography class at a large university, 40% of the students could not find London on a map, 41% could not find Los Angeles, and almost 9% could not find the city where they were attending college.

There are a number of possible reasons for the increase in the number of students who are not receiving a good basic education. First, classes are sometimes too large. In some city schools, for example, there are often between forty and fifty students in a class. Then, there are many teachers who do not know enough about the subjects that they are teaching. The college programmes which train future teachers are not always good and do not always attract the top students. But the problems are not always the fault of the teachers or the education system. Often students who do not want to learn behave badly and disturb the classes. As a result, the students who are really interested in their school subjects cannot learn much in these classes. Finally, according to some people, television is also to blame for the lack of success of the public schools. Young people often watch six or more hours of television a day. They do not take time for their homework. They grow to depend on television for entertainment and information, and, therefore, they cannot see any reason for reading in this modern world. All the entertainment and information they want comes from television, not from books.

A second group of people is dissatisfied with the public schools for very different reasons. These people usually have very

40 conservative beliefs about life. They do not like the changes which
they see every day in American society, and they disagree with
many of the ideas which their children hear and read about in
school. For example, they are against the sex education classes that 4
some schools give. For them, sex education is not a suitable subject
45 for schools. They also object to schoolbooks that describe the lives
of mothers who work outside the home or of parents who are
divorced. They do not like history books which criticize the U.S.
for mistakes made in the past. They are even against dictionaries
that define one or two dirty words.

50 There are, however, many other people who completely disagree
with the ideas and actions of these conservatives. "They are trying
to limit our freedom. We must protect our children's right to learn
about many different ideas," these parents say. Thus, in the U.S. 5
today there is a lot of discussion about very important questions in
55 education. Who will decide school programmes and books? Does
the government have the right to decide? Do the school
administrators have the right to decide? Can teachers decide? Do
only parents have the right to decide the things that their children
learn in school? Watch television and read news magazines; you
will hear a lot of different answers to these questions.

A. What do the following refer to?

1. 'there' (line 4): _____

2. 'them' (line 10): _____

B. Mark the best choice.

1. Which of the following does recent educational research show?

- a) The number of high school students who cannot read is decreasing.
- b) The number of high school students who cannot read is increasing.
- c) Students who graduate from high school are good at all subjects.
- d) Students at a large university are especially good in geography classes.

2. What is the main idea of the second paragraph?

- a) In the U.S. there is a general dissatisfaction with public school education.
- b) According to some people, students are not learning enough in the public schools.
- c) There is a lot of discussion about the public schools in the U.S. today.
- d) There are several reasons for the failure of the public schools.

UNTITLED

Companies can increase the money with which they run their business in a number of ways. Besides borrowing money and buying on credit, they can use some other processes of financing. Two ways of increasing money are described here. First, they may provide
5 bonds. Bonds are a special kind of promissory note, a written promise to pay back the money owed. They can be in various currencies , or forms of money used in different countries, such as the pound in England or the mark in Germany. These bonds can easily be resold to other people or to other countries. The company that uses bonds
10 guarantees to pay a particular amount of money as interest regularly for a certain period of time. This continues until the time when the company has to pay back the money owed. Payments of interest must be made on time; it doesn't matter whether the company is making earnings or losing money. Another process companies may use is to
15 provide other forms of promissory notes called stocks. Bonds and stocks are opposite methods of providing money for a company. The people who buy stocks provide capital which is invested in the business. They have a share in the profits and in making decisions, but they must also share the losses. The people who own stocks receive
20 dividends , that is, periodic payments of the earnings *of* a company. On the other hand, according to the law, the people who own bonds have no control over the decisions of the company.

A. Line 4, 'they' refers to_____.

B. What do the following mean in the text?

1. 'currencies' (line 6):_____

2. 'dividends' (line 20):_____

C. Mark the statements as True (T) or False (F).

_____ 1. People who buy stocks cannot take part in deciding how the company will manage its business.

_____ 2. Companies have to pay interest only if they have been earning money.

_____ 3. Bonds and stocks are two of the ways of increasing money.

DISASTER AT SEA

Along **the** coast of the United States, **the** U.S. Coast Guard helps ships that get into difficulty at sea. The Coast Guard, like the Navy, is controlled by the U.S. government. It receives the money that it needs from the government; therefore, its ships, planes, and helicopters are very modern.

In Great Britain the system is very different. There are a small number of men, called lifeboatmen, who go out to help ships in trouble. These brave men often risk their lives, but they receive no money for their work. They live in small towns on the coast, and most have other jobs. The special lifeboats that they need are provided by the Royal National Lifeboat Institution (R.N.L.I.), a private group which depends completely on money from private people. The R.N.L.I. does not accept any money from the government. As a result, it cannot always buy the best and most modern lifeboats. For example, ten years ago, British researchers began to criticize the lifeboats which were in use at that time . According to their studies, the lifeboats never sank, but they turned over in certain sea conditions and stayed upside down in the water. However, there was a new kind of lifeboat that did not turn over. The R.N.L.I. began to buy this safer kind of boat, but it could only buy one every year.

Some years ago, on the southwestern coast of England, a lifeboat station that did not have the new type of lifeboat received a radio call from a small ship that was sinking. The call came in the middle of the worst storm in forty years. The sea was very rough, but the lifeboat went out to try to save the men on the sinking ship. Two hours later, the radio of the lifeboat stopped, and nothing more was heard from them. One day later a helicopter found the lifeboat. It was lying upside down in the sea. Probably a large wave hit it and turned it over. Everyone in the lifeboat had died. No one had survived.

The news of the disaster shocked the people of Great Britain. A number of people began, to criticize the lifeboat system. In their opinion, the U.S. system is better. "We cannot send brave men out in boats which aren't safe," they said. "They need the best boats which money can buy. The government must control the lifeboat system." Today, however, the system remains the same.

HOW TO USE *THE READER'S GUIDE*

The Reader's Guide to Periodical Literature is subject and author

list of many (but not all) magazine articles published in the U.S. This list, called an index, is sent to U.S. libraries every two weeks so that interested people can find out quickly what current information is available. For university or college students who must frequently do research, this list of subjects written about in magazines of general interest can be valuable. Learning to use *The Reader's Guide* is, therefore, important to all university students in the U.S.

The content of *The Reader's Guide* consists of subject and author entries to periodicals; that is, magazines published regularly. This information is listed alphabetically. After the subject or author's name, information is given which tells the student where to find the magazine article. For example, if you want to look up the subject 'Education', you should look up the letter 'E' and then find the word 'Education'. If you want to look up an author whose last name is 'Rodriquez', you should look up the letter 'R' and then find the word 'Rodriquez'. Under the subject or the author listing, you will find articles listed, in alphabetical order, about that subject or by that author. Each article is listed by the first word in the title of the article except for the words 'a', 'an', and 'the'; these initial words are not considered in the alphabetizing of articles.

The Reader's Guide also has two kinds of cross-references; that is, information about other places to look in *The Reader's Guide* for more articles about a subject. After a heading, you might find the word 'see' which is followed by other subject headings also found in the index. For example, 'Higher Education' isn't a subject heading in *The Reader's Guide*; if you look up 'Higher Education' you will find: "see Universities and Colleges". Then you will look under 'U' for universities. The other kind of cross-reference is 'see also'. For instance, if you look for 'Education', *The Reader's Guide* will list articles about education, but it also says: "see also: Adult Education, Elementary Education, Special Education". If you are interested in any of those headings, you can look them up in *The Reader's Guide*.

PALEOGEOGRAPHY

To answer questions about the ancient geography of the earth in order to make comparisons with the present day geography, it is necessary to make maps of the lands and seas that existed during past ages. This process of reconstructing ancient geography is called

paleogeography (from the Greek word *palaious*, meaning ancient). Like a modern day detective, the geologist must search for clues about the nature of the ancient geography among the rocks. The clues are of two main kinds: the types of fossils preserved in rocks and the properties of the rocks themselves. By studying these clues, the geologist gains direct knowledge about the distribution of the lands and seas and also the natural environment of the area, such as climate, the temperature and salinity, i.e. the salt content, of the water, and the downhill direction of slopes on the earth's surface. The last item is very important in helping the geologist to guess where the mountains and basins were located in the geologic past.

The distribution of fossils (skeletons, shells, leaf impressions, footprints, and dinosaur eggs) in rocks can provide information about the ancient distribution of lands and seas. For example, the remains of corals and clamshells (sea animals) in very old limestone deposits indicate that the area was once part of a shallow sea. Similarly, when the remains of ancient animals, such as horses and camels, are found, it can be assumed that the area was dryland or that land was nearby.

Fossils can also show the depth and temperature of ancient waters. For example, certain kinds of shelled sea animals live in shallow water, others in deep water. Certain kinds of present day coral need warm and shallow tropical salt waters to be able to live. When similar types of coral are found in ancient limestone, it can be surmised that the area at one time had a warm, tropical climate.

The properties of rocks are also important clues about the ancient past and are used as guides to reconstruct paleogeography. In 1863, the famous naturalist, Louis Agassiz, helped to solve a mystery about the origin of certain kinds of rocks, containing a mixture of sand, silt and clay. Some experts thought the rocks originated during the Biblical flood, but others suggested that they were caused by sediment, i.e., anything left behind from melting icebergs.

After a summer in the Swiss Alps studying glaciers and glacial deposits, Agassiz discovered that the rocks found, for example, in much of Europe had been spread by large continental glaciers.

Much of what Agassiz saw could be explained only by glacial

40 action. Because a glacier is a solid mass of ice, it moves slowly, and
as it moves, it picks up all sizes of debris: in other words, the scattered
remains of broken particles, ranging from huge rocks to silt and clay.
As the ice melts, all the debris is left behind in the form of a layer or
material of many kinds.

45 Using these two important clues - fossils and rocks - plus other
information, geologists are able to reconstruct ancient geography to
make comparisons with the earth's present geography. By comparing
these, geologists know that the appearance of the earth's continents
has been constantly changing over the centuries. And this changing of
50 the earth's surface is still going on today, but it is so gradual that
people are aware of the change only occasionally. Earthquakes and the
formation of new volcanoes are two spectacular actions used by nature
to change the face of continents.

Truly, we live in a changing world.

A. Below, you will find some words from the passage and their dictionary
definitions. Mark the definition which is the meaning of the word in the text.

1. slope (line 13)

- i. lie or to move at an angle from the horizontal or vertical
- ii. cause to slope
- iii. stretch of ground that is not flat
- iv. in a graph (of a point of a plane curve) slope of the line that is tangent to a curve at a point

2. surmise (line 27)

- i. infer something from little or no evidence; guess
- ii. the idea or opinion based on little evidence; guess
- iii. act or process of surmising

3. guide (line 30)

- i. one who guides, especially one who is employed to lead or conduct tours
- y ii. something that directs or influences
- iii. show the way to; lead
- iv. direct the course or motion of

4. deposit (lines 19,37)

- i. put money or valuables in a bank for safe keeping
- ii. set or lay. down
- iii. leave as a layer
- iv. something put in a place for safe keeping
- v. something given as partial payment
- vi. something that has settled as a layer over a period of time

A CASE FOR SAFETY

During the late 1970's about 1,500 pedestrians, most of whom were teenagers, were killed or badly injured on the roads in Britain. By the 1980's, the figure had doubled.

There was a debate about the relentless rise in these figures at the European Road Safety Year Conference in London, where various people expressed their opinions on the topic:

Frank West, Chairman of the Pedestrians' Association:

This killing of pedestrians, especially children, is a national disaster but it is obscured by the decline in road casualties as a whole. Among reasons for that general decline are stronger cars, the wearing of seat belts and less walking. The result is that people think the roads are safer, although for pedestrians they are becoming more and more dangerous. We know from the work of Professor Ian Howarth at the University of Nottingham that most casualties occur in residential areas hardly because children ignore drivers, but it is just the other way round. We need to narrow the roads and use policemen to slow down cars. We also want to see better policing and improved driver training as well. In Norway, you get a driving licence only after passing two tests. You receive a temporary licence after the first but it is made permanent only after passing another test, a year later. Something similar should be introduced for new drivers in Britain.

Reducing casualties among the ten- fourteen-year-olds presents special difficulties. Such children are beginning to explore on their own and tend to give up the basic rules for crossing roads taught at school. They begin to cross the roads by copying adults, learning the dangerous and difficult trick of choosing a gap in the traffic, and marching right into the road. Whatever the case is, children can be excused but not adults. We do not want to see another 3,000 pedestrians, especially young boys and girls, killed or hurt in the 1990's.

David Smith,
The Department of Transport, Head of Road Safety:

We are aware that the decline in casualties among motorists seems likely to leave pedestrians the largest single road-user casualty group in the 1990's. Therefore, any required action for reducing casualties to the minimum will be taken.

Peter Bottomley, Minister for Roads:

We advise town planners and road safety engineers to switch their attention from vehicles to people. A third of all journeys are made entirely on foot. Most other journeys involve walking to some degree. That must make pedestrians the most important class of road users. Too often planners and road safety engineers seem to forget that.

A. Mark the best choice.

1. According to Frank West, _____.
 - a) most pedestrians, especially children could avoid accidents by walking less
 - b) British roads are safer for pedestrians despite what people think
 - c) there would be fewer casualties if children wore seat belts
 - d) the general decrease in road casualties obscures the increase in deaths of children on the roads
2. The reason for most accidents in towns is _____.
 - a) children not obeying rules for crossing roads
 - b) drivers not paying enough attention
 - c) children ignoring vehicles and drivers
 - d) drivers who have a temporary driving licence
3. West refers to Norway because _____.
 - a) they know how to educate children about traffic
 - b) fewer people are killed on the roads than Britain
 - c) they have a better driving test system than Britain
 - d) their police are more strict with drivers

CHANGES IN WORLD CLIMATE

Although the weathermen's forecasts for a month ahead are only a little better than guesswork, they are now making long-term forecasts into the next century with growing confidence. For the dominant trend in the world's climate in the coming decades will, scientists say, be a predictable result of man's activities.

At the start of the industrial revolution nearly two centuries ago, man innocently set off a gigantic experiment in planetary engineering. Unaware of what he was doing, he spared no thought for the consequences. Today, the possible outcome is alarmingly clear, but the experiment is unstoppable. Within the lifetimes of many of us, the earth may become warmer than it has been for a thousand years. By the middle of the next century, it may be warmer than it has been since before the last Ice Age. And the century after that may be hotter than any in the past 70 million years.

Superficially, a warmer climate may seem welcome. But it could bring many hazards - disruption of crops in the world's main food-producing regions, famine, economic instability, civil unrest and even war.

In the much longer term, melting of the great ice-caps of Greenland and Antarctica could raise sea-levels throughout the world. The average sea-level has already risen a foot since the turn of the century, and if the ice-caps disappear entirely, it would rise by nearly 200 feet. Complete melting might take many centuries, but even a small increase in sea-level would threaten low-lying parts of the world such as the Netherlands.

The man-made agent of climatic change is the carbon dioxide that has been pouring out of the world's chimneys in ever-increasing quantities since the industrial revolution began. And in the past few years, scientists have begun to suspect that there is a second man-made source of carbon dioxide which may be as important as the burning of fossil fuels, namely the steady destruction of the world's great forests. Trees and other vegetation represent a huge stock of carbon removed from circulation like money in a bank. As the vast tropical forests are cut down, most of the carbon they contain finds its way back into the atmosphere as carbon dioxide.

The amount of CO₂ (carbon dioxide) in the atmosphere is still tiny. But it has climatic effects out of all proportion to its concentration. It acts rather like the glass in a greenhouse, letting through short-wave radiation from the sun, but trapping the longer-wave radiation by

40 which the earth loses heat to outer space.

Computer studies have suggested that if the concentration of carbon dioxide in the atmosphere were to be twice that of today's, there would be a rise of between 2°C and 3°C in average temperature.

A. What do the following refer to?

1. 'they' (line 2): _____
2. 'it*' (line 15): _____
3. 'if (line 22): _____

B. Mark the best choice.

1. Line 16, 'hazards' probably means _____.
a) advantages b) benefits c) problems d) precautions
2. Line 39, 'trapping' probably means _____.
a) not allowing to pass
b) making easier to pass
c) letting through a surface
d) losing heat
3. Which of the following cannot be one of the results of a warmer world climate?
a) An increase in food production.
b) Wars between countries.
c) The death of millions of people from starvation.
d) Economic instability.
4. Scientists predict that, in the long term, _____.
a) there will be a Third World War
b) all countries will be flooded
c) the sea-level will not rise noticeably
d) the polar ice-caps might melt completely
5. Man has changed the world's climate by _____.
a) building chimneys
b) using up more carbon dioxide
c) decreasing industrialisation
d) destroying forests and burning fossil fuels

6. If the amount of CO₂ in the atmosphere increases considerably,___
- a) the world will become warmer
 - b) we can expect colder weather .
 - c) plants will tend to grow faster
 - d) we will have to destroy more forests
7. Weathermen believe that our future climate will be the direct result of
- a) clever long-term forecasts
 - b) scientific experiments
 - c) planets' changing course
 - d) man's activities

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VENOM THERAPY

5 The stings of bees, wasps, hornets and yellow jackets can have life-threatening, sometimes fatal, results in minutes - even in persons who have been stung previously without suffering more than pain, redness, and swelling. Fatal reactions probably are more common than once thought. It was discovered, for example, that some deaths caused by heart attacks at tennis courts, golf courses, or pools were in fact the result of insect stings.

10 Fortunately, people who have experienced bad reactions need no longer restrict their outdoor activities and live in fear of 'next time'. A reliable immunization treatment has been developed; it consists of increasing a person's tolerance with a series of injections of increasingly greater amounts of the venom - i.e. the poison produced by an insect - to which an individual is sensitive. In just two or three hours, a patient receives three injections of venom into his arm. While

15 the third might contain 100 times the quantity of the first, it still would be less than the amount in a single sting. Approximately once a week for six weeks the patient receives additional injections, building up to the equivalent of two stings. This maintenance dose is then given monthly.

20 Venom therapy will cost about \$200 to \$300 per patient per year, for the venom itself, plus fees for physicians' services and for laboratory work. Venom therapy currently is considered appropriate only for people who have experienced generalized body reaction affecting the skin, respiratory or vascular systems. Others who do not show any sign of reaction should avoid this therapy.

ANTISEPTICS

An antiseptic is a substance which destroys bacteria or keeps them from increasing. Today, many types of antiseptics such as alcohol, iodine, iodoform and formalin are manufactured and used quite commonly. In addition to these manufactured antiseptics, the body itself has certain ways in which it defends itself against bacteria or germs. Tears, sweat, saliva (the fluid in the mouth) and blood contain substances which resist common infections. The greatest of nature's antiseptics are the white corpuscles in the blood, which are called phagocytes. These have the important quality of being able to consume harmful bacteria that enter the blood stream or infect a part of the body. When such bacteria are present in the body, the phagocytes rush to the infected spot and devour the invaders . The phagocytes are usually strong enough to destroy the bacteria unless the latter increases in number too quickly.

In the same way that bacteria attack human beings and cause infections, so they attack meat and vegetables and other food, making them go bad. Bacteria need favourable conditions to grow. These include moisture, and a fairly warm atmosphere. Thus, meat which has to be kept for a long time is frozen, and this makes it too cold for bacteria to grow until it is thawed out again.

A. What do the following refer to?

1. 'the latter*' (line 14): _____
2. 'they' (line 16): _____

B. Mark the best choice.

1. Line 7, 'resist' probably means _____.
 a) cause b) fight against c) defend d) increase
2. Line 12, 'devour' probably means to _____.
 a) enter b) infect c) consume d) rush
3. Line 12, 'the invaders' are probably the _____.
 a) phagocytes b) bacteria c) infected spots d) human beings
4. Line 20, 'thawed out' is the opposite of _____.
 a) cold b) moist c) fairly warm d) frozen

HOW TO BE A HAPPIER MOTHER

All research agrees on loving care as an essential ingredient in healthy child development. But there is increasing doubt that the 24-hour-a-day, seven-day-a-week mother is the best way to provide it. Two recent studies have come up with the same result: 40 per cent of the mothers who stay at home with children under five are depressed. Doctor Michael Rutter and Doctor Steward Prince, among others, have shown that depressed mothers produce depressed, neurotic and backward children. There are many other mothers who, without being depressed, are exhausted and, therefore, oppressed by the unending repetitive task of caring for a baby, or by the constant demands of a young child, and so get less pleasure from their children than they might. A full-time mother at home is very likely to feel imprisoned and depressed. A depressed mother can be psychologically very damaging to her child because she will certainly not be able to give proper attention to k. There is good evidence that withdrawal of attention is more harmful to children than physical absence. Therefore, a husband with common sense will certainly agree to make arrangements so that the mother can take some time off to pursue her own interests. He may choose to stay at home and take over the responsibility or a baby sitter may be employed. Any arrangement will do the mother good as long as 'k is *regular* and doesn't involve renegotiation every time. For instance, once a week, a completely free day and evening during which the mother is relieved of all responsibility is optimal. She can visit friends, go to a museum, or spend all morning buying a pair of shoes and she needn't come back until she feels like it. The only rule is that she must go out, not stay at home doing housework. It is actually best of all if arrangements are made so that parents can regularly spend a night out together.

A. What do the following refer to?

1. 'if (line 3): _____
2. 'others' (line 6): other _____
3. 'she' (line 14): _____
4. 'if (line 15):. _____
5. 'He' (line 19): _____
6. 'if (line 21): _____ / _____ , _____
7. 'which*' (line 23): _____

TELESCOPE SITES

- Today, telescopes are built at remote sites chosen for the quality of their observing conditions. Such sites are preferred because the sky is dark. Near big cities, the light from the cities causes light pollution, which interferes with the observation of the sky. Higher altitudes are more suitable, since there the humidity is very low and the atmosphere is quite calm.

A. Mark the best choice.

1. Line 1, 'remote' means _____.
 - a) isolated
 - b) crowded
 - c) well-lit
 - d) famous
2. To interfere with (line 4) means to _____.
 - a) improve
 - b) help
 - c) protect against
 - d) cause difficulty in
3. Line 5, 'there' refers to _____.
 - a) in humid areas
 - b) in the sky
 - c) in the atmosphere
 - d) at higher altitudes

B. Mark the statements as True (T) or False (F).

- _____ 1. Telescopes are built near cities to obtain light from cities for a better observation of the sky.
- _____ 2. The higher the altitude, the higher the humidity.

. ..

FOOD FOR THE STARVING

The number of people **who** die as a result of starvation is increasing every day; People don't always die just because they don't eat; they die because they are so weakened from lack of food that they get ill very easily. Very few people die of measles in Great Britain. Measles is just a childhood disease that most of us experience and shake off in a week or two. For those whose bodies are weakened by starvation, however, measles is a killer. And so are hundreds of other diseases. Last year about 30,000,000 people died of such minor diseases. That's the equivalent of the majority of the population of Great Britain. There can be no doubt that if those people had gotten proper food, many of them would still be alive today.

Firms in this country are currently spending millions of pounds manufacturing meat. Not meat from cows but completely synthetic, artificial meat. They are making it out of a certain kind of fungus and from other vegetable matter. By adding flavour and other constituents, this 'meat' is said to be indistinguishable from the meat taken from animals. It has the same protein and other beneficial elements that a pound of steak or chicken contains and we are assured that within a few years we will be eating it as readily as we now eat lamb or beef.

A large number of us will be extremely hesitant about this synthetic foodstuff and therefore, the firms involved will have to spend many more millions on persuading us, through advertising, that we really need the new food. So, by the time the first vegetable sausage sizzles in our frying pans, millions of pounds will have been spent on the research, manufacture and selling of the new product.

If it is true that such meat can be produced, if it is true that it really is as good as the real thing, and if it is going to be cheap, these products should not be directed at those who already have enough food but at those who have none. Let the major firms forget about spending millions trying to persuade us to eat it and use their marvellous new invention to feed the vast mass of the world's population who have never even seen meat. Haifa loaf of bread is better than none: synthetic meat is better than an occasional handful of rice.

Every year the major agricultural countries of the world produce too much of certain products - the quantity is beyond what is needed or consumed. Milk, vegetables and the like go off quickly as they cannot be efficiently stored. Modern food technology has presented us with the ability to freeze and to dehydrate (or freeze-dry) food. Could we not be sensible and make use of this surplus of products by

40 processing them to give them longer life and flying them out to where they are needed?

Those countries which sometimes have too much should make their surplus available in some form to those which have too little. Don't tell me that it would cost too much money. If a tenth of what is spent
45 on advertising, packaging, and distributing food is creamed off and spent on processing it for the starving, we would save a great many lives.

A. Mark the best choice.

1. To shake off (line 5) means _____.
a) to recover from b) to die of c) to have d) to protect against
2. Line 14, 'fungus' is probably a kind of _____.
a) meat b) vegetable c) synthetic fiber d) fruit
3. Line 27, 'the real thing' probably refers to _____.
a) synthetic meat b) artificial food
c) natural meat d) manufactured products
4. Lines 32-33, 'Half a loaf of bread is better, than none' probably means _____.
a) it is better to give the starving people real meat rather than synthetic meat
b) it is better to give the starving people synthetic food rather than no food at all
c) half a loaf of bread is better than a handful of rice
d) half a loaf of bread is better than half a pound of synthetic meat
5. Line 43, 'those' refers to _____.
a) countries b) surplus products c) poor people d) many lives
6. Which statement summarises the first paragraph?
a) Very few people die of measles in the world today.
b) 30 million people died of measles last year.
c) More people would survive minor diseases with proper food.
d) A few children in Great Britain die of measles because of poor food.
7. The producers of synthetic meat will _____.
a) supply those who are starving with the surplus of products
b) have to spend millions on advertising
c) find it difficult to sell it to those who have never seen meat
d) be hesitant about eating it

8. Which of the following states the main idea of the text? .
- a) The people in developed countries are not keen on eating synthetic foods.
 - b) More could be done to help the starving people of the world.
 - c) Synthetic meat has greater nutritional value than lamb or beef.
 - d) Modern food technology enables us to store food efficiently.

B. Mark the statements as True (T) or False (F).

- _____ 1. It would cost less to save the lives of starving people than to persuade people in the West to eat synthetic meat.
- _____ 2. One tenth of what is spent on advertising, packaging and distributing is spent on helping the starving masses of the world.
- _____ 3. Surplus food could be processed and sent to poor countries.
- _____ 4. Modern food technology is being used to make life easier for poor people.
- _____ 5. Today, the majority of the starving population eat dehydrated food products.

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KEYS TO QUICKER LEARNING

At a dinner party two men were discussing *The Right Stuff*, a book about the Mercury space programme. While Ted went on and on about the technical details he had picked up from the book, Dan offered only a few comments. "Ted got so much more out of the reading than I did."

5 Dan later said "Is he more intelligent than I am?"

The two men had similar educational backgrounds and intelligence levels. It was later discovered that Ted just knew how to learn better than Dan did. Ted had made his brain more absorbent by using a few simple skills.

10 For years, experts had believed that an individual's ability to learn was a fixed capacity. During the last two decades, however, leading psychologists and educators have come to think otherwise. "We have increasing proof that human intelligence is expandable," says Jack Lochhead, director of the Cognitive Development Project at the

15 University of Massachusetts in Amherst. "We know that with proper skills people can actually improve their learning ability."

Moreover, these skills are basic enough so that almost anyone can master them with practice. Here, gathered from the ideas of experts across the country, are several proven ways to boost your learning

20 ability.

1. *Look at the big picture first.* When reading new, unfamiliar material, scan it first. Skim subheads, photocaptions and any available summaries. This previewing will help anchor in your mind what you then read.

25 2. *Practise memory-enhancing techniques.* These techniques, also called mnemonics, transform new information into more easily remembered formulations. For instance, to a student who cannot spell the word arithmetic, a teacher can teach a sentence that remains locked in mind for years: "A rat in Tom's house may eat Tom's ice
30 cream." The first letters of each word spell arithmetic. Although mnemonics were once dismissed by researchers, they are now considered an effective means of boosting memory - doubling or even tripling the amount of new material that test subjects can retain.

35 3. *Organise facts into categories.* In studies at Stanford University, students were asked to memorize 112 words. These included names of animals, items of clothing, types of transportation, and occupations. For one group, the words were divided into these four categories. For a second group, the words were listed at random. Those who studied the material in organised categories consistently outperformed the
40 others, recalling two to three times more words. For example, to remember the names of all former U.S. presidents in proper order, cluster the leaders into groups - those before the War of 1812, those from 1812 until the Civil War, those from the Civil War to World War I, and those after World War I. By thus organising complex material into
45 logical categories, you create a permanent storage technique.

4. *Discover your own learning style.* What's your style? Try some self-analysis. What, for example, is your approach to putting together an unassembled item? Do you concentrate better in the morning or in the evening? In a noisy environment or a quiet one? In a library or in
50 your own room? Make a list of all the pluses and minuses you can identify. Then use this list to create the learning environment best for you. Whichever style works for you, the good news is that you can expand your learning capacity. And this can make your life fuller and more productive.

A. Mark the best choice.

1. "Ted got so much more out of the reading than I did" (line 4) can be rephrased as
- a) "Ted got more reading materials than I did."
 - b) "Ted prefers to read outside but I don't."
 - c) "I didn't read as much as Ted did."
 - d) "Ted learned more about the material than I did."

THE DISCOVERY OF THE ELECTRON

In the mid-1800's scientists wanted to know whether the atom was really indivisible. They also wanted to know why atoms of different elements had different properties.

5 A major breakthrough came with the invention of the Crookes' tube or cathode-ray tube . What is a cathode-ray tube and how does it work?

10 Everybody knows that some substances conduct electric current; that is, they are conductors, while other substances do not. But with enough electrical power, a current can be driven through any substance - solid, liquid, or gas. In the *cathode-ray tube*, a high voltage electric current is driven through a vacuum. The tube contains two pieces of metal, called *electrodes*. Each electrode is attached by a wire to the source of an electric current. The source has two terminals, positive and negative. The electrode attached to the positive electric terminal is called the *anode*; the electrode attached to the negative terminal is called the *cathode*. Crookes showed that when the current was turned on, a beam moved from the cathode to the anode; in other words, the beam moved from the negative to the positive terminal. Therefore, the beam had to be negative in nature.

20 The German physicists in Crookes's time favoured the *wave theory* of cathode rays because the beam travelled in straight lines, like water waves. But the English physicists favoured the *particle theory*. They said that the beam was composed of tiny particles which moved very quickly - so quickly that they were hardly influenced by gravity. That was why the particles moved in a straight path. Notice how an experimental observation led to two different theories.

25 Crookes proposed a method to solve the dilemma . If the beam was composed of negative particles, a magnet would deflect them. But if the beam was a wave, a magnet would cause almost no change in direction. Particles would also be more easily deflected by an electric field. In 1897, the English physicist J.J. Thomson used both these techniques - magnetic and electric - to show that the rays were composed of particles. Today we call these particles *electrons*. (The term *electron* was suggested by the Irish physicist George Stoney, in 1891, to represent the fundamental unit of electricity.) In 1911, a young American physicist named Robert Millikan determined the mass of the electron: 9.11×10^{-28} grams. (To get an idea of how small this is, notice that minus sign up there in the exponent, and think of all the zeros we would have to put before the 9 if we wrote the entire number as a decimal.)

40 Next, someone had to prove that the electrons weren't coming from
the electricity, but were being given off by the metal electrodes. Proof
that metals do give off electrons came from the laboratories of Philipp
Lenard, a German physicist. In 1902, he showed that ultraviolet light
45 directed onto a metal makes it send out, or emit, electrons. This effect,
known as the *photoelectric effect*, indicated that atoms contain
electrons.

A. Mark the statements as True (T) or False (F).

- _____ 1. If there is sufficient electrical power, even a solid or liquid may conduct electricity.
- _____ 2. J.J. Thomson named the electron.
- _____ 3. In the number 9.11×10^{-28} , the -28 tells us how many zeros to add before the number.
- _____ 4. Photoelectric effect has shown that all elements contain electrons.

B. Mark the best choice.

1. Lines 4-5, 'A major breakthrough came with the invention of the Crookes' tube, or cathode-ray tube' can be rephrased as _____
- a) "The invention of the Crookes' tube was a successful development."
 - b) "The invention of the Crookes' tube prevented people from learning more about the cathode-ray tube."
 - c) "The cathode-ray tube was invented by Crookes."
 - d) "Despite the invention of the cathode-ray tube, a lot about atoms remained unknown."
2. Line 19, 'favoured' means _____.
a) supported b) proved c) acquired d) resisted
3. Line 26, 'dilemma' means _____.
a) the difficulty of making an experimental observation
b) the basis of most experiments in physics
c) the problem of making a choice between two theories
d) the technique used for moving particles in a straight path
4. Line 27, 'deflect' means _____.
a) turn into iron c) electrify
b) cause to change direction d) make photoelectric

5. The function of this passage is to_____.
- a) describe how a cathode tube works
 - b) show how the electron and its properties were discovered
 - c) show the reader the superiority of German scientists
 - d) inform the reader about the contributions of Robert Milükan

43

INFLATION

Inflation has attracted more public interest than any other aspect of economics, for the simple reason that everyone finds himself immediately affected by it. The common belief is that inflation is necessarily a negative occurrence but there are various reasons why this might not be the case. Let us consider some of the arguments.

Simply described, inflation is the situation where increased wage demands result in higher prices of consumer goods, which causes further increased wage demands. This is called an inflation spiral. The following example will make this point clear. The workers in the car industry demand and receive a wage increase. This causes producers to increase the market price of cars in order to make a profit. People see that they cannot so easily afford to buy cars and, as a result, they ask for higher wages in order to maintain the same standard of living as before. These new wage increases result in rising prices for goods and services in all sectors of the economy. Car industry workers now face higher prices so they demand higher wages. A side effect of this spiral is that workers in other industries may ask for similar increases before any price rises occur, simply because they feel that they, too, should have more money.

The general effects of inflation can be discussed according to whether they are largely positive or largely negative. The positive effects will be considered first and may be divided into two main groups: effects on prices and wages and effects on loans. The consumer discovers he has to pay more for goods and services although he can find himself better off than other groups of workers if his wages increase faster than theirs. In this way, income gaps between low-paid and high-paid workers can be **narrowed by allowing** low-paid workers to have a larger increase. Everybody gets a rise, **but** some receive more than others. Obviously, if all wages are increased by the same percentage as prices in general, no change **in** standard of living takes place.

The effect of inflation on loans is beneficial to the borrower. In other words, loans reduce in value so that a borrower only has to pay

35 back the nominal value of the loan and not its true, or real, value. This
benefits the borrower, as the following example shows. A student
borrows £10,000 to study medicine and become a doctor. This is the
amount that a qualified doctor earns in 1 1/2 years. When the student
pays back the loan six years later, £10,000 is the equivalent of only
40 nine months' salary. Even if normal interest rates are added to the
loan, this will not significantly change the final result.

A. What do the following refer to?

1. 'they' (line 18): _____
2. 'they' (line 21): _____
3. 'he' (line 25): _____

B. Mark the best choice.

1. What is the function of this text?
 - a) To explain the causes and effects of inflation.
 - b) To persuade the reader to do something about inflation.
 - c) To inform how much the workers in car industry suffer from inflation.
 - d) To explain why inflation has only negative effects.
2. Inflation attracts so much interest because _____.
 - a) all people are affected by inflation at once
 - b) there is a common belief that inflation is a negative occurrence
 - c) several reasons contribute to the increase in inflation
 - d) higher prices of consumer goods are due to high wage demands
3. Which of the following is the main idea of the second paragraph?
 - a) People cannot easily afford to buy cars during times of inflation.
 - b) During a period of inflation, workers in the car industry might demand a wage increase.
 - c) The relationship between increasing prices and wages is an inflation spiral.
 - d) Car manufacturers have to increase the price of their product because of inflation.
4. Which of the following is emphasized most in the fourth paragraph?
 - a) A doctor earns 210,000 in 1 1/2 years.
 - b) It is an advantage to borrow in times of inflation.
 - c) It costs £10,000 to study to be a doctor.
 - d) Normal interest rates are added to borrowed money.

FRESH WATER

Today, finding a source of fresh water is becoming more and more difficult. Many of our streams, rivers and lakes have been contaminated with sewage, and many towns and cities obtain their drinking water from these same streams, rivers and lakes. To prevent this constant contamination, sewage treatment plants are being built in many places. These are capable of converting sewage into pure drinkable water.

Another way to solve the problem of fresh water is to make use of the most abundant source of water we have: the sea. If we could learn to get potable water from sea water easily and cheaply, we would solve the problem. Man cannot live on sea water directly because of the high proportion of minerals (mainly salt) in it. More than 2% of salt in a solution is dangerous for the human body. Sea water contains 3.5% of salt. Such a high quantity causes dehydration in human body; that is, the body loses the liquids necessary for life. Thus, it is necessary to reduce the percentage of salt in sea water to an acceptable level before using *n*. A number of methods can be used to do this. The most common method is distillation. Sea water is heated until the water evaporates and the salt is left behind. The steam then condenses into pure water. Another method is freezing. When this is done, the water freezes first, leaving the salt behind. The ice is then removed and pure water is obtained. A third method is called reverse osmosis. Pure water molecules are separated from the salt molecules under great pressure.

Recently scientists have been working on a completely new idea: The idea of obtaining fresh water from the air. Winds coming from the sea carry a lot of water vapour. This vapour condenses into water if it strikes something cold. If scientists can build a large condenser, then they can collect and store fresh water easily. Unfortunately, the main problem with all of the mentioned methods is their high cost. That's why scientists are looking for ways of reducing the cost.

A. What do the following refer to?

1. 'These' (line 6): _____
2. 'it' (line 17): _____
3. 'to do this' (line 17): _____

MINERALS

Minerals are substances which are crystalline solids and which occur naturally. There are more than twenty different minerals in the body. Three of the most important minerals are calcium, phosphorus, and iron. Calcium and phosphorus work together. The bony skeletons of vertebrate animals, including man, are composed of calcium phosphate. If people have enough calcium and phosphorus, their bones and teeth will be strong and hard. In addition, their muscles, nerves, and heart will work properly. Calcium makes up about 2% of the human body. About 99% of that amount is contained in the teeth and bones. Milk and hard cheeses are the best sources of calcium. After the age of 19, people need only 400 to 500 milligrams of calcium a day. Phosphorus, on the other hand, makes up 1.1% of the human body. A number of high-energy compounds found in our bodies, such as adenosine triphosphate (ATP), contain phosphorus. ATP is capable of transferring as well as storing energy in living cells and is responsible for energy necessary for physical activity.

Iron is a mineral which makes the blood look red and which carries oxygen for our normal physical activities. All lean meats - especially liver - whole grains, nuts, some vegetables, and dried fruits are good sources of this mineral. Iron deficiency results in a disease called anemia. Anemic people do not have enough iron in their blood, and this causes their hearts to beat faster so that their bodies can get more oxygen. Such people, therefore, get tired easily, and their skins sometimes look rather white.

A.

1. What two criteria does a substance have to fulfill in order to be called a 'mineral'?

- a) _____
- b) _____

2. What are the minerals absolutely essential for our bodies?

3. What does deficiency in calcium and phosphorus cause in a person's body?

- a) _____
- b) _____

4. Where does the body store most of the calcium?
5. What type(s) of minerals do people need if they want to have sufficient energy to play tennis, for instance?
6. How much calcium does a
- a) fifteen-year-old person need?
 - b) thirty-year-old person need?
- a) _____
- b) _____

B. Complete the following according to the information in the passage.

1. Iron is essential in blood because _____
2. _____ are food items rich in calcium.
3. Anemia is caused _____
4. An anemic person may show certain symptoms or signs. Two of these are:
- a) _____
 - b) _____

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A MISUNDERSTANDING

- One of those misunderstandings which sometimes occurs when the gasman comes to call has brought puzzlement and ultimate good fortune into the domestic lives of two Essex women. Mrs. May Bradbrook and Mrs. Brenda Kerr live in Alton Gardens, Westcliff-on-Sea. Mrs. Bradbrook's home is number 40 and the Kerr residence is number 14. The difficulties began when Mrs. Bradbrook decided that the time had come to purchase a new cooker. She placed her order with the North Thames Gas Board, but the official who took the details misheard her address.
- Paperwork duly went through for the delivery and installation of a new gas cooker at number 14, Alton Gardens. When the gasmen arrived with it, there was nobody at home. They were relieved, however, to find a considerate note saying, "Key next door." Mrs.

15 Kerr was expecting a visit from the Eastern Electricity Board that day and had made arrangements for a neighbour to let them in. When the gas board appeared instead, the neighbour assumed that she had misunderstood Mrs. Kerr and handed over the key. The new cooker was installed and Mrs. Kerr's old one taken away.

20 Shortly afterwards, an aggrieved Mrs. Bradbrook telephoned the gas board saying that she had waited in all day but the cooker had not come. Inquiries were started. Meanwhile, Mrs. Kerr got home to find the unexpected and gleaming appliance in her kitchen. Clearly, something was amiss but before Mrs. Kerr could get down to deciding how to sort it out, she had an urgent priority. She had to cook her
25 husband's tea. There was no other appliance in the house, so she used the new cooker.

The board, having heard from Mrs. Bradbrook and contacted its gasmen, was swift to realise the error. It assured Mrs. Bradbrook that there would be no further delay in getting the cooker to her. After all,
30 it had only to travel a short way up the road.

But - Mrs. Bradbrook pointed out - it was no longer the new cooker she had ordered, was it? It had been used. The gas board saw her point and found that it also had a problem at number 14. It had assured Mrs. Kerr that her old cooker would be returned pronto. But it turned out
35 that the cooker had been broken up for scrap immediately after it was taken away.

Both women had clearly suffered 'some inconvenience,' as the board acknowledged. The upshot of the affair is that Mrs. Bradbrook now has the cooker originally intended for her, but at a 20 per cent
40 discount of £30. Mrs. Kerr has been given a reconditioned "good as new" cooker worth an estimated £350 to replace her scrapped one. And the North Thames Gas Board is some £380 out of pocket.

A. Mark the best choice.

1. Line 19, 'aggrieved' means _____.

- a) upset b) confident c) tactful d) timed

2. Line 28, 'swift' means _____.

- a) inquisitive b) gentle c) quick d) insensitive

3. Both Mrs. Bradbrook and Mrs. Kerr live in Alton Gardens and a mix-up occurred because _____.

- a) Mrs. Bradbrook gave the wrong address to a gas board official
b) Mrs. Kerr placed an order for a new gas cooker
c) someone at the gas board took the wrong message
d) Mrs. Bradbrook went out to work leaving a message next door for the gasmen

DOWNTOWN FIRE SURVIVOR

22-year-old Angela Medeiros was one of the lucky ones. She survived the blazing inferno that ravaged the forty-storey Torres building in downtown Sao Paolo yesterday. At least thirty people are known to have lost their lives in the fire that raged for over twelve hours. The final count is expected to be far higher as desperate relatives try to locate missing members of their families.

Angela was indeed lucky to survive. She worked on the twentieth floor, just three floors above where the fire is believed to have started as a result of an electrical fault in an air-conditioner.

Her first impression that something was wrong was when she saw a column of thick black smoke rising past the window of her office. "There was no sound of an alarm or anything," she said. "Just the cries of people screaming and running all over the place. It was terrible. My first thought was to cover myself with water, and I rushed to the bathroom. It was a very strange reaction. When I came out there was no one in the office; I was the only one there."

What followed was a nightmare. She tried to get to the emergency staircase, but by this time the smoke was too thick and she knew that she could either stay where she was or make an attempt to reach the roof, twenty floors above, where there was a helicopter landing-pad. She decided to stay where she was and managed to open a window and struggle out onto a ledge. It was then that she realised that she was probably safe. The fire had passed through her floor and although flames were everywhere, she could at least breathe. Her instinct told her to stay where she was and wait for rescue. "Somewhere I had read that the new ladders on the fire engines could be extended to reach the twentieth floor," she explained. "I hoped it was true!"

What happened over the next seven hours defies description. She witnessed people desperately throwing themselves out of the windows of the floors above her. She admits that she was tempted to do the same. She was afraid that no one would see her and that she would not be able to hold on. "I just prayed, and thought of my mother and father and the family, and about the holiday we were going to have in two weeks' time."

She was rescued after someone in the crowd below alerted firemen to the small figure huddled against a ledge in a corner of the twentieth storey. "I saw the ladder moving up towards me," said Angela, "but I must have lost consciousness, because that's the last thing I remember. The next thing I recall was waking up in the ambulance."

WAS IT SOMETHING THEY ATE?

Pirkko Mononen's father, aged 59, died of a heart attack. He was one of nine children from a farming family; seven of them died the same way. Pirkko's husband, Heikki, knows how she feels. His father and mother had heart trouble and for both of them the third attack was fatal.

Their case is not unusual for Pirkko and Heikki, aged 46 and 47. They live in Finland, where the death rate from heart disease used to be the highest in the world. Not any more, though, as Scotland and Northern Ireland have taken over the lead.

The Mononens took part in a novel experiment. Their blood cholesterol levels were measured. They and 29 other families in their village then swapped their diet for the fresh vegetables and low saturated fat intake of an Italian community in the south of Naples.

The experiment changed their eating habits. It was part of a long-term state programme backed by the World Health Organisation. In 1971, MPs presented a petition from local people begging the government to do something about the alarming number of middle-aged men dying prematurely from heart attacks. At the start of the project, there were about 250 fatal attacks in the area each year. Today, that number has been reduced by about 100. An initial survey had showed smoking and diet to be the key factors. Sour and salty flavours were popular, meals were large, and milk was drunk at the table instead of water, wine or beer.

The Finland-Italy experiment caught people's imagination. Pirkko laughs when she confesses they ate no spaghetti over the six-week trial. "I prepared all kinds of Finnish traditional dishes, but I used vegetable fat instead of lard." The couple won a free trip to Polce, the village chosen for the other half of the experiment, and saw a big difference. The Italians used the fat on meat to make soap instead of eating it as they do here," said Heikki. His cholesterol level almost halved during the trial. Now, they have switched to low-fat milk - in spite of keeping a herd of dairy cows - and grow their own vegetables.

In the last ten years, people have been cleverly persuaded not to eat high-fat food. Housewives were taught new methods of food preparation, and special 'Long Life Parties' were organised where families would eat together. Between 1969 and 1979, deaths among middle-aged men in the area fell by 27%.

TOWARDS A WORKING RENAISSANCE

In historical times, many societies operated a two-tier (a tier is a level in a system or organisation) system made up of people who controlled and those who worked and were controlled. Work was not an activity to be enjoyed. However, another group of people emerged alongside this system. They were the merchants and artisans. Merchants worked for profit, and artisans (people skilled in arts and crafts) worked for wages. These were the people who first gave us the idea of work as paid employment.

Today, people need to work in the same way they need to eat and drink. This is what we call the 'work ethic'. (An ethic is an idea or moral belief that influences the behaviour, attitudes and philosophy of life of a group of people.) People work for the money they need in order to live well, but there is another reason beyond this basic motivation which makes people want to work. Work gives people a feeling of being useful.

In a pre-industrial society, the work ethic did not exist. Work and leisure went together and only part of Sunday was taken as time off. In this society, singing, talking, drinking and gossiping went together with work. With the emergence of the work ethic, leisure and holidays were separated from work, thus changing the former ordinary social system of interaction. During the Industrial Revolution, for most people, work was so unpleasant that leisure was considered as a kind of freedom. Yet, in spite of the fact that life was hard and work was tiring, people slowly changed from having to work to wanting to work. Today, the work ethic is so strong that people feel it is their right to work.

The questions we should perhaps be asking ourselves are, firstly, whether we really like our jobs and secondly, even if we like them, whether they are really necessary. Many kinds of work are disappearing as natural resources are used up and new technologies appear. For example, computers are already replacing people in order to do boring, repetitive jobs and to improve efficiency. To a large extent, the price of labour, as compared with the cost of the new equipment, determines which jobs will be replaced. However, the new technologies will create new jobs both in the computer field and in the leisure industry.

It has been predicted that new technology could result in a period of growth and prosperity. This, however, does not mean that the ever-growing number of unemployed people will drop. What it means

40 is that finance and resources will become available to improve social services, education and the health service. The quality of life can be improved with better facilities and a significant increase in the workforce behind the services.

45 It has taken more than a hundred years to reduce the working week from 60 to 55 hours, then 48, 44 and now 40. The next step will be a reduction to 35 and then, perhaps, to 32 hours. The current five-day working week will become a four-day or even a three-day event. In order to achieve this shortened working span, paid holidays will probably be increased and the age of retirement will be lowered.

50 However, attitudes to work must change as well. Community life ought to become more important and the leisure industry needs to be expanded to cater for the needs of both young and old people, all of whom will have more spare time. In Europe, only France has taken this problem seriously enough to appoint a government official
55 responsible for 'free-time'.

Making changes in the education system could solve a lot of problems. In fact, creativity and sensibility could start a totally new period, perhaps a new 'Working Renaissance'.

A. What do the following refer to?

1. 'this society' (line 18): _____
2. 'they' (line 29): _____
3. 'all of whom' (lines 52-53): _____

B. Mark the statements as True (T) or False (F).

- _____ 1. The two-tier system consisted of working people and another group who controlled them.
- _____ 2. Today, people work only because they need to eat and drink.
- _____ 3. Improvements in technology cause many kinds of work to disappear.
- _____ 4. Leisure industry will become more important if the working hours are reduced and the retirement age is lowered.

C. Mark the best choice.

1. To emerge (line 4) means to _____.
 - a) work
 - b) control
 - c) begin to appear
 - d) enjoy an activity

CRIMES

Every community in the world recognises certain activities as crimes. Because of this, each has developed its own way of dealing with crimes and has chosen a number of different punishments to match them. So, society identifies crimes, administers justice, and then imposes suitable punishments.

It is surprising, however, how much the various societies of the world differ in the areas of crime, justice and punishment. What may be a crime in one country is often perfectly acceptable in another. For example, as you may know, jaywalking, that is, not crossing the road at the proper crossing place, is illegal in areas of the world such as North America, but in other areas, quite legal. As well as deciding what is legal and what is illegal, societies must also decide whether a crime is petty or serious. For example, carrying a gun is a very serious offence in some countries, but a very petty one in others.

Similarly, the ways of administering justice differ from country to country. In some countries a person is considered innocent until he is proved guilty, but in others the opposite is true. In other words, in the former it is the job of the authorities to prove that the person has committed a crime whereas in the latter it is the individual's task to prove his innocence.

Crimes vary, systems of justice vary, but the greatest variation between countries is in the methods of punishment that they use. For example, a person convicted of theft in some parts of the Middle East might face a severe penalty, whereas the same crime would receive a relatively lenient punishment in some Scandinavian countries. Denmark provides a good example of the more lenient approach to crime and punishment. About half the people sent to prison there go to what is called an 'open prison'. In these prisons, the inmates are allowed to wear their own clothes, provide their own food, bring in their own furniture and have their own radios or television in the cell.

They are not locked in their cells at night, although each prisoner is given a key to his own cell and can lock the door at night if he wishes. Most open prisons in Denmark also have special rooms where prisoners can entertain friends, husbands or wives unsupervised, in privacy and comfort, for at least an hour a week.

After four weeks in a Danish open prison, a prisoner is normally entitled to a 'holiday' outside the prison. Usually he is allowed out of prison for one weekend every three weeks. Of course, prisoners do not have to leave the prison every three weeks - they can save up their

weekends away and take a break of up to eight days if they prefer.

Prisoners in open prisons in Denmark are also allowed out for a whole range of activities such as buying clothes, visiting the doctor or simply going for a walk with their visitors. If a prisoner needs to leave the prison for educational purposes - attending a course or receiving technical training - then, in certain circumstances, he may be allowed to spend the night outside the prison.

A. Mark the statements as True (T) or False (F).

- _____ 1. Every society has a different way of dealing with crimes.
- _____ 2. An individual has to prove his innocence wherever he lives.
- _____ 3. The method of punishment is the biggest difference between countries.
- _____ 4. Theft is severely punished in Scandinavia.
- _____ 5. Nearly half of Denmark's population lives in open prisons.
- _____ 6. In some Danish prisons uniforms are not required.
- _____ 7. Prisoners in Denmark can spend the night outside prison any time they want to.

B. Find words or phrases in the text that mean the same as the following.

- 1. not crossing the road at the proper place (paragraph 2): _____
- 2. crime (paragraph 2): _____
- 3. not guilty (paragraph 3): _____
- 4. punishment (paragraph 4): _____
- 5. prisoners (paragraph 4): _____
- 6. having the right to do something (paragraph 6): being _____

C.

- 1. In what way does Denmark differ from some Middle Eastern countries?
- 2. How long does a Danish prisoner have to spend in prison before he can go out for the first time?

3. Write two kinds of activities that Danish prisoners can go out for.

AN OBSESSION WITH REPTILES

J John Cheetham's magnificent obsession with reptiles began when he was a schoolboy in his hometown of Oldham, Lancashire.

A glimpse from the top of a bus of alligators basking in the sun at Manchester's famous Belle Vue Zoo set his imagination racing. He took every opportunity of visiting the zoo, and the more he saw of the creatures that seemed to have stepped out of the remote past, the more his fascination grew, until it embraced all reptiles. When he was 11, he bought a baby alligator from a local pet shop. It was the first step to becoming the only private collector of giant reptiles in Britain. It was also to lead to John's appearing with his own alligators and pythons in films and on television. And that same pet alligator is still with John, although he's grown a little during the 27 years they've been together. Big Boy, a magnificent specimen of Alligator Mississippiensis, found in the southern states of North America, is now 10 ft. long and weighs 19 stone.

Big Boy and John have appeared with Roger Moore in *Live and Let Die* and *Moonraker*. Big Boy has also featured in *Clash of the Titans* and on TV advertisements. James Bond fans have seen quite a bit of John without realising it. It was his legs that did the spectacular dash to safety over the backs of alligators in *Live and Let Die*.

Among John's other pet reptiles to star in films are Aristotle, a 14-ft-long reticulated python aged six, and Pythagoras, a 14-ft Indian python who, at eighteen, is the grand old man among the snakes. Aristotle and Pythagoras both featured in the underwater wrestling scene in *Moonraker* with John in a friendly tussle, although the eventual result on film looks deadly serious.

John's collection also includes a giant tortoise, snapping turtles, the largest legless lizards or slowworms found in the world, and Nile crocodiles. Most of the giant reptiles in John's collection are housed at Beaver Water World, Tatsfield, which is owned by Jeff Wheeler, his friend and partner.

Collecting giant reptiles might seem a strange hobby for John, a teacher at Dorton House School for the Blind at Seal, near Sevenoaks. But John often introduces pupils to his pet snakes, letting them touch and hold them. John lets blind children and anyone else handle the pythons without any fear that they will attack. They are benign creatures. "All they want is a quiet life," he said.

BEYOND DRUGS

Below is the true story of Sue Usiskin, who suffers from epilepsy, a brain condition which causes a person suddenly to lose consciousness and sometimes to have violent fits.

Sue Usiskin was in a crowded Chinese restaurant with her family when she had an epileptic fit. Her husband Andrew helped her into a safe and comfortable position on the floor, held her hand while the fit lasted and, while she lay there recovering, he and the children started their meal. Then they settled her in a chair and carried on eating. "At first, everyone in the restaurant was / absolutely horrified," laughs Sue. "Then, as we were leaving, a woman rushed over to congratulate Andrew on how naturally he had handled it all. She had realised that it must happen a lot." Unfortunately for Sue, it does happen a lot. She is one of the 20% of sufferers from epilepsy whose fits cannot be completely controlled by drugs. She suffers at least three a month.

She is an inspiring example of someone who has not let epilepsy control her life. She has shared that inspiration in a new book, *Living With Epilepsy*, co-written with Dr. David Chadwick, consultant neurologist at Walton Hospital, Liverpool.

The indignity of, as she puts it, "collapsing on the ground in a noisy jerking heap" has long since ceased to worry her, although naturally it is never pleasant, but she has vivid memories of how, as a teenager, friends ran screaming from her when she had a fit in the playground at school. That she didn't lose all her self-confidence at that time is all due, she believes, to her parents. "They never tried to limit my activities because of what people might think if I had a fit and how it might affect me. On the contrary, I was encouraged to make an extra effort to overcome my difficulties and not allow them to become an excuse for doing less," she says.

"I tell people I am likely to see regularly that I suffer from epilepsy, and explain what they should do if I have a fit. I say, if I suddenly get up and lie on the ground, make sure I am away from anything I could hurt myself against, then stay with me and hold my hand. That makes them much more confident and comfortable."

She is adamant that children should be helped to understand what is going on and how to help right from the time they can crawl. "From a very early age, mine were used to seeing Andrew kneeling down with me, showing concern and protection. He always included them - he would encourage them to stroke my

40 face. They soon knew what to do and they could do it right, if 5
tearfully."

Her son, Oliver, is now 15 and Anna 12. "They are at the
self-conscious stage and my fits must be an embarrassment to
them. They have both gone through phases of being tense and 6
45 anxious. But we have supported their feelings, whatever they are,
and the fact that they are not frightened to voice them must be
good."

She has always been very practical in her approach to coping.
When the children were babies, she would never change them on
50 the bed from where they might fall if she had a fit, or bath them if
she were alone in the house with them. She uses casserole-style 7
saucepans rather than long-handled ones which are easier to knock
over. She chooses not to swim or ride or take escalators because
she personally isn't comfortable about the risks. But she has never
55 avoided going out for fear of what might happen.

Her own and her children's courage in that respect have been
enormous. Once, when Oliver was two, she was dragged out of a
taxi by the driver, who thought she was drunk, and was left to have
a fit in the street in the pouring rain. On another occasion, she 8
60 crumpled to the floor just inside a building society and the staff
refused to come out and help because they thought she was a 'front'
for a hold-up.

The children, when young, often had to try to dissuade
onlookers in the street or shops from calling an ambulance, and Sue
65 herself has often had to suffer having spoons thrust between her 9
teeth to stop her biting her tongue (incorrect: only something soft,
like the bunched edge of a towel, is suitable).

She is not bitter about such experiences, except where her
children suffered, and looks back on many with humour. "This is
70 my life and I've known no other for so long. I just get on and live
it." But she is very keen to combat all the ignorance and prejudice. 10
Once someone said to her that she must be very grateful to Andrew
for marrying her and that shocked her. Conversely, she feels that
doctors often over-estimate the quality of life that someone in her
75 position can achieve. She regularly gives talks to medical students
and GP trainees to give them a truer picture of epilepsy.

"I'm still terrified every time I have a fit," she says. "It is quite
something to lose all control for three or four minutes. Believe me,
it is a long time and I sometimes go unconscious after. It doesn't
80 get easier. After a fit, it's like having a really heavy hang-over for 11
the next two or three days. But there are positives, too. When you
know what the rougher side of life can deal you, trivial things don't
worry you at all. I never get upset if the washing machine breaks
down."

5. How did Sue's friends at school react when she had a fit?
-
6. What helped Sue maintain her self-confidence?
-
7. How does Sue think that her fits affect her children now?
-
8. What were the things she avoided doing when her children were babies?
-
9. What should be done to stop epileptics biting their tongues during a fit?
-
10. How long does an epileptic fit last?
-

53

DOUBLE GLAZING

From The Observer.

If you are considering double glazing, you must already have insulated your roof and walls. In an 'ordinary' home you lose 25 per cent of heat through the roof and 35 per cent through the walls, so they must be your priorities, unless your house is made of windows.

5 New buildings now have to meet new standards of insulation and are often fitted with double glazing when built. Usually this factory-made double glazing does not just add to the comfort, but is very well designed and actually looks quite good. 2

10 Still, it's a difficult decision to double glaze an existing home,, since you're going to have to spend a lot of money on what will save you about 10 per cent of the heating bill in an ordinary small house. 3

15 Of course, there are other benefits besides the financial one. The room will be much more comfortable. You won't get a chilly feeling when sitting near the window and draughts will be fewer. So, on the whole, if you have money, double glazing is not a foolish investment, though even good double glazing won't be as 4

effective as a brick wall!

20 Double glazing is not just 'Double Glazing'. There are several ways of achieving it. You can install 'replacement windows' with two sheets of single glass. Or you can have 'secondary windows', either fixed to the existing window or sealed to it. Secondary windows are cheaper, can often be installed by the owner, but are not likely to be so efficient as replacement windows.

25 If you want to do the job yourself, the simplest form of double glazing is the applied frame method, which means fixing a second pane of glass directly onto the original frame using beading or special frame sections. The most important thing is that any opening in the second leaf should be completely blocked with a
30 long-lasting material. Points to check are : that condensation will not occur between the two panes; that you will be able to open 'openable' windows, (or that you're prepared to give up that luxury); that you will be able to clean the window and that you have some other way of letting fresh air in.

35 If you think that by double glazing you automatically insulate against sound too - think again. To have a noise insulating effect, the two leaves will need a gap of 110 mm or 200 mm; so double glazing with noise insulation needs to be specially made. It is more difficult to make it look nice and to fit it into the existing window
40 openings. Moreover, with this gap it won't work as well for heat insulation. So, if you don't live directly under Concorde's flight path, it will hardly be worth insulating for sound.

A. Which paragraph focuses on each of these ideas as the main idea? Write the number of the paragraph in the blank.

- _____ 1. Double glazing is expensive.
- _____ 2. You can do your own double glazing if you are careful enough.
- _____ 3. There are mainly two ways of double glazing.
- _____ 4. In a house, mainly the roof and the walls should be insulated.
- _____ 5. Double glazing is useful.
- _____ 6. A special kind of double glazing is required for noise insulation.

B. What do the following refer to?

- 1. 'one' (line 13): _____
- 2. 'it' (line 22): _____
- 3. that luxury'(lines 32-33): _____

PARACHUTING

Over the past 25 years or so, there has been a sharp increase in the popularity of parachuting as a sport. Parachuting can be learnt at a parachute club. The training is extremely strict. The instructor makes sure that the beginner has learnt and understood everything before the
 5 first jump is made.

Like all parachutists, the beginner must wear two parachutes - a main one on the back and a slightly smaller reserve one on the front. Trainee parachutists do not open their parachutes themselves. By law, they have to make their first six descents using a parachute opened
 10 automatically by a 15-foot nylon static line fixed to the aeroplane. It takes about 2.7 seconds for the jumper's weight to pull on the line, and thus open the parachute.

Trainees are taught how to 'spread eagle' - to lie stomach down and stretch their arms and legs out to slow down their fall. In this way .
 15 they descend at about 120 miles per hour before the parachute opens, whereas an experienced sky-diver, descending headfirst, can travel at over 200 mph. Novices jump from a height of about 2,500 feet, while experienced freefallers may jump from well over 7,000 feet, waiting until they are within 2,000 feet off the ground before pulling the
 20 ripcord to open their parachutes .

A. What do the following refer to?

1. 'one' (line 7): _____
2. 'they' (line 9): _____
3. 'In this way' (line 14): _____
4. 'their parachutes' (line 20): the parachutes of _____

B. What do the following mean?

1. 'descents' (line 9): _____
2. 'Novices' (line 17): _____

JOIN *GREENPEACE* TODAY!

- The natural world is under violent assault from man. The seas and rivers are being poisoned by radioactive wastes, by chemical discharges and by the dumping of dangerous toxins and raw sewage. The air we breathe is polluted by smoke and fumes from factories and motor vehicles; even the rain is poisoned.
- It's little wonder forests and lakes are being destroyed and everywhere wildlife is disappearing. Yet, the destruction continues.
- Governments and industries throughout the world are intensifying their efforts to extract the earth's mineral riches and to plunder its living resources.
- The great rain-forests and the frozen continents are seriously threatened in the same way. Despite the warnings of the scientific community and the deep concern of millions of ordinary people, governments and industries don't even consider changing their policies.
- The threat is there in spite of the fact that we can create environmentally-clean industries, harness the power of the sun, wind and waves for our energy needs and manage the finite resources of the earth in a way that will safeguard our future and protect all the rich variety of life-forms which share this planet with us.
- But there is still hope. The forces of destruction are being challenged across the globe - and at the spearhead of this challenge is *Greenpeace*.
- Wherever the environment is in danger, *Greenpeace* has made a stand. Its scientific presentations and peaceful direct actions at sea and on land have shocked governments and industries into an awareness that *Greenpeace* will not allow the natural world to be destroyed. Those actions have also won the admiration and support of millions.
- Now you can strengthen the thin green line; you can make your voice heard in defence of the living world by joining *Greenpeace* today.

A. Mark the best choice.

1. Which of these statements is **not** mentioned in the text?
 - a) Drinking water is polluted.
 - b) Radioactive waste poisons the sea.
 - c) Sewage isn't processed.
 - d) Cars and factories poison the air.

BACK TO NATURE

For centuries town and country have been regarded as being in opposition to each other. It has been suggested that the superficial differences between the two - wide open spaces contrasting with brick and concrete - are less important than the contrasting attitudes of town and country.

I am a city person who always says that, given the choice, I would prefer to live in the country away from the dirt and noise of a large city. I tell others that if it weren't for my job, I would immediately head out for the open spaces and go back to nature in a village buried in the country. But do I perceive the country as it really is?

Cities can be frightening places. The majority of the population live in massive tower blocks, noisy, squalid and impersonal. The sense of belonging to a community tends to disappear when you live fifteen floors up. All you can see from your window is the sky, or other blocks of flats. Children become aggressive and nervous - cooped up at home all day, with nowhere to play; their mothers feel isolated from the rest of the world. Strangely enough, whereas in the past the inhabitants of one street all knew each other, nowadays people on the same floor in tower blocks don't even say hello to each other.

Country life, on the other hand, differs from this kind of isolated existence in that a sense of community generally binds the inhabitants of small villages together. People have the advantage of knowing that there is always someone who will help them. But country life has disadvantages, too. While it is true that you may be among friends in a village, it is also true that you are cutoff from the exciting and important events that take place in cities. There is little possibility of going to a new show or the latest movie. Shopping becomes a major problem, and for anything unusual you have to go to the nearest large town. The city-dweller who leaves for the country is often depressed by the stillness and quietness.

Which, then, is better to live in, the country or the city? The latter causes stress and a feeling of isolation - constant noise damages the senses. But one of its main advantages is that you are at the centre of things, and that life doesn't finish at half-past nine at night. The former has the advantage of peace and quiet, but suffers from the disadvantage of being cut off. Some people have found (or rather bought) a compromise between the two; they have moved to villages not too far from large urban centres. These people generally have nearly as much sensitivity as the plastic flowers they leave behind -

40 they are polluted with strange ideas about change and improvement which they force on to the unwilling original inhabitants of the villages.

What, then, of my dreams of having a small cottage in the country? I'm keen on the idea, but you see there is my cat, Toby. I'm not at all
45 sure that he would like all that fresh air and exercise in the long grass. No, he would rather have the electric imitation coal fire any day.

A. What do the following refer to?

1. The latter* (line 31): _____
2. The former* (line 34): _____
3. 'the two' (line 37): _____
4. These people' (line 38): _____

B. Mark the best choice.

1. Line 2, 'superficial' means _____.
a) natural b) important c) only on the surface d) related to inner quality
2. Line 10, 'perceive' means _____.
a) see b) satisfy c) agree d) stimulate
3. Line 25, 'cut off from' means _____.
a) prevented from b) led to c) compensated by d) deprived of
4. Line 37, 'compromise' means _____.
a) promise of company c) varied concept
b) intermediate solution d) isolated answer
5. The writer says that in the country you are _____.
a) cut off from anyone who will help you
b) unable to see shows, films and major events
c) never able to find stillness and quietness
d) made to live in an isolated way
6. Most city people who move to the country _____.
a) try to change the village people with their ideas
b) want to take their plastic flowers with them
c) live far away from the cities they work in
d) bring the city noise and dirt pollution with them

EARTHQUAKE PREDICTION

Can earthquakes be predicted? Scientists are working on programs to predict where and when an earthquake will occur. They hope to develop an early warning system to save lives. Scientists who do this work are called seismologists.

5 Earthquakes are the most dangerous and deadly of all natural events. They occur in many parts of the world. Giant earthquakes have been recorded in Iran, China, Guatemala, Chile, India, and Alaska. Two of the biggest earthquakes that were ever recorded took place in China and Alaska. These earthquakes measured about 8.5 on the
10 Richter Scale. The Richter Scale was devised by Charles Richter in 1935 and is used for comparing the energy level of earthquakes. An earthquake that measures 2 on the scale can be felt, but causes little damage. One that measures 4.5 on the scale can cause slight damage, and an earthquake that has a reading of over 7 can cause major
15 damage.

How do earthquakes occur? Earthquakes are caused by the movement of rocks along cracks, or faults, in the earth's surface. The fault is produced when rocks near each other are pulled in different directions. The best-known fault in North America is the San Andreas
20 fault in the state of California in the United States.

The nations that are actively involved in earthquake prediction programs include Japan, China, Russia, and the United States. These countries have set up stations in areas of their countries where earthquakes are known to occur. These stations are ready for warning
25 signs that show the weakening of rock layers before an earthquake. Many kinds of seismic instruments are used by these places to watch the movements of the earth's surface. One of the instruments is a seismograph. It can follow vibrations in rock layers thousands of kilometers away. Tiltmeters are used to record surface movement
30 along fault lines. Seismologists use gravimeters to measure and record changes in local gravity. The scientists also check water in deep wells. They watch for changes in the water level and temperature, which are signs of movement along faults.

A. What do the following refer to?

1. 'one' (line 13):

2. 'which' (line 32):

MARKETING

Marketing, which is sometimes called distribution, includes all the business activities connected with the movement of goods and services from producers to consumers. Marketing consists of both physical activities such as transporting, storing and selling goods, and a series of decisions related to any part of the process of moving goods from the producer to the consumer. Marketing operations include product planning, buying, storage, pricing, promotion, selling, credit, and marketing research.

The ability to recognise future trends is as important as knowing the present conditions in marketing. Producers must know why consumers buy, where and for what purpose. Through market research, the producer tries to predict what the customer will want and, through advertising, attempts to influence what the customer will buy.

In most countries, manufacturers obviously spend a lot of money on advertising their goods. We cannot walk down the street, watch television or read a newspaper without being 'attacked' by advertisements. Doubtless, many people think that too much money is spent on advertising. "Wouldn't it be better," they say, "to spend all this advertising money on improving the product or service, or on projects to help poor people?" Advertising, however, is essential for a manufacturer's survival. It is vital to keep the name of the product in front of the public. Otherwise, sales will fall. Another manufacturer of the same kind of product may continue advertising and his name will be the one that people remember when they go shopping. And his sales will increase.

Some people will then almost certainly say, "But why should two or more companies produce the same things? Surely, it is more economical for each company to produce a different product. Then, there would be little or no need for any advertising." But there is a sensible economic answer to this argument as well. Competition between companies is vital because it helps to improve the quality of the product and to keep prices down. The result is a better and cheaper product for the public. Since competition is essential, advertising is vital.

A. Define marketing.

Marketing is a process _____

POPULATION GROWTH

It is widely believed that the world's population has exploded because of the improvements in medical science, which has naturally led to improved standards of public health. Infant mortality has been greatly reduced and the average length of life has been extended on a great scale.

Demographers, or population statisticians, are less alarmed by the absolute rise in the world population figures than by the increase in the rate of growth. They estimate that it will take only about 30 years for the world population to double. Pessimists expect this soaring growth to continue until the limits of food, space and natural resources are forced.

It is not easy to find solutions to problems caused by population growth. In fact, effective action is lacking because of our inability to decide exactly where the problems lie. For example, many millions of people do not have enough to eat, but at the same time we could argue that the world is not over-populated in relation to its food supply at the present time. The total cultivable land is more than 15 billion acres. Using modern agricultural methods, we could produce more than enough food for the present population of about 5 billion.

It appears, then, that the world's population could be almost three times as large before there is a serious shortage of food. But it is unlikely that all the cultivable land would be used for food production. If this were done, there would not be any land left to meet man's increasing demand for houses, factories, airports, roads and other facilities.

A. Find words or phrases in the text which mean the same as the following.

1. death in infancy (paragraph 1): _____
2. population statisticians (paragraph 2): _____
3. extremely rapid increase (paragraph 2): _____
4. suitable for agriculture (paragraph 3): _____

B. Mark the best choice.

1. Which of the following is **not** a consequence of the improvements in medical science?
 - a) Fewer deaths in infancy.
 - b) Longer length of life.
 - c) Decrease in population.
 - d) Higher public health standards.

2. Demographers are alarmed more by _____.
 - a) the rise in the number of people in the world
 - b) the increase in the rate of population growth
 - c) the solutions to the problem caused by population growth
 - d) the people who argue that the world is not over-populated

3. We can say that the world is not over-populated if we consider
 - a) its present food supply
 - b) the increasing demand for housing
 - c) the serious shortage of food
 - d) the problems caused by population growth

4. If all the cultivable land were used for food production, _____.
 - a) there would be a serious shortage of food
 - b) the population growth would be controlled
 - c) no land would be left for housing and other facilities
 - d) part of the world population would not have enough to eat

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LASERS IN MEDICINE

5 A laser is a very strong beam of light which is very different from ordinary light. Today, doctors use lasers in some eye operations. They use them when operating on a patient who has a detached (i.e. separated) retina. The retina is the inner back part of the eye, the part that senses light. Light from an object must strike the retina for seeing to occur.

10 In the past, a detached retina caused blindness in the eye. Now, the laser makes delicate eye operations possible, and a detached retina no longer means the loss of sight. By carefully directing this super light beam, the doctor can weld the retina to the rest of the eye again. The welding of the retina takes less than a thousandth of a second and is done without anesthesia. Anesthetizing the patient is not necessary, because the patient feels no pain.

15 Doctors also want to use lasers in operations on people who have heart diseases. In the United States and Canada alone, more than 1.5 million people suffer from heart diseases every year. Most of these are related to the flow of blood through the coronary arteries, which supply the majority of the blood to the heart. People who have a heart disease have a high amount of cholesterol in their blood. Cholesterol
20 builds up fatty deposits called 'plaques' on the inner walls of the

arteries. As the plaques get bigger, the opening of the artery gets smaller. When it is completely closed, blood stops flowing and the heart attack occurs.

- 25 Some doctors are planning to use lasers to destroy these fatty deposits in the near future. More studies are needed, but some doctors feel this plan will be beneficial for heart patients. At present, though, lasers have many other uses in hospitals; they are used in sterilizing instruments, stopping bleeding and removing birthmarks.

A. What do the following refer to?

1. 'them' (line 3): _____
2. 'these' (line 16): _____
3. 'this plan' (line 26): _____

B. Scan the text and find the definitions of the following.

1. retina: _____
2. plaques: _____

C.

1. What are the present uses of lasers in hospitals?

- a) _____
- b) _____
- c) _____
- d) _____, _____

2. How are doctors planning to use lasers in the future?

3. How can doctors weld the retina to the eye again?

4. When do heart attacks occur?

D. Mark the statements as True (T) or False (F).

- _____ 1. In the past, it was impossible to avoid blindness caused by a detached retina.
- _____ 2. The welding of the retina still requires a long and difficult operation.
- _____ 3. Medicine is given to the patient to reduce pain in eye operations with laser.
- _____ 4. Most blood reaches the heart through the coronary arteries.
- _____ 5. Cholesterol can leave fatty deposits in the arteries.

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ENGINEERING IN CHARGE

- Do you realise that every time you take a step, the bones in your hip are subjected to forces between four and five times your body weight? When you are running, this force is increased further still. What happens if, through disease, a hip-joint ceases to be able to
- 5 resist such forces? Like all fantasies, the Bionic Man has an element of reality in *n* and for many years, hip-joints and other body joints have been replaceable partially or completely. It is, after all, a simple ball and socket joint; it has certain loads imposed on it; it needs
- 10 reliability over a defined life, and it must contain materials compatible with the working environment. Any engineer will recognise these as characteristic of a typical engineering problem, which doctors and engineers have worked together to solve in order to bring a fresh lease of life to people who would otherwise be incapacitated.
- This typifies the way in which engineers work to help people and
- 15 create a better quality of life. The fact that this country has the most efficient agricultural industry in the world is another prime example . Mechanical engineers have worked with farmers, horticulturalists and biologists to produce fertilisers, machinery and harvesting systems. The paintings of Brueghel show farmers in the sixteenth century
- 20 wading through shoulder-high cereal crops. This team effort has now produced crops uniformly waist-high or less so that they are more suitable for mechanical harvesting. Similar advances with other crops have released people from hard and boring jobs for more creative work, while machines harvest crops more efficiently with less waste.
- 25 Providing more food for the rapidly increasing population is yet another role for the mechanical engineer.

A. What do the following refer to?

1. 'such forces' (line 5): _____
2. 'if (line 6): _____
3. "If (line 7): _____
4. 'another prime example' (line 16): another prime example of _____
5. 'this team effort' (line 20): the team effort of _____

B. What are the four characteristics which make the replacement of a hip-joint to be considered as a typical engineering problem?

- a) _____
- b) _____
- c) _____
- d) _____,

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FOOD FOR THE WORLD

By the year 2000, the world population is expected to be about 7,000 million. This great increase in the world population, or 'demographic explosion' as it has been called, will cause many problems: shortage of housing, shortage of facilities and psychological stress. But the biggest problem of all will be the shortage of food. In 1973, in West and Central Africa, there were serious deficiencies of basic foods such as corn, rice, milk and meat. This was partly because of natural disasters such as drought (not enough rain) and floods, that is, too much rain, but basically it was because of a real shortage of these foods. Everywhere in the world, the prices of basic foods rose and it became impossible for many people to buy enough of them . Nutritional experts estimated that half the world's population was under-nourished and that millions were near starvation. And in 1973, the population of the world was only half of what U may be in the year 2000!

Agricultural experts are trying to increase the output of food in the world without great increase in price. They are working on projects for breeding plants and animals which are bigger, grow faster and are resistant to diseases. In India, for example, new strains of rice have been developed, which has greatly increased yields. In Mexico, excellent new varieties of wheat have been produced by Dr. Norman E. Borlaug, who was awarded the Nobel Peace Prize in 1970 for his work.

However, increasing yields in this way may be expensive, and may require large quantities of fertiliser to 'feed' the land. If the population continues to grow, more and more agricultural land will be needed for housing. For many years now, experts have been experimenting with techniques of cultivating plants by using mixtures of chemical compounds and water only. This is called 'hydroponics', and if it becomes economical, vegetables and fruit could be produced in

factories instead of fields. In addition, agricultural scientists have been cross-breeding livestock - cattle, pigs, chickens, etc. - to produce better animals.

35 Mechanisation is another way of producing more food. Machines can do work faster, more efficiently and more cheaply than man and they are being used in industrialised countries to do almost all farming jobs.

40 One of the best hopes scientists have for solving the food crisis is to find new sources of food, especially protein. Experimental food is now being produced from petroleum, from seaweed and from other surprising raw materials.

A. What do the following refer to?

1. This' (line 7): _____
2. them' (line 11): _____.
3. 'if (line 14): _____
4. 'they' (line 36): _____

B. What do the following mean?

1. 'drought' (line 8): _____
2. 'livestock' (line 32): _____

C.

1. Why were there serious deficiencies of food in Africa?
2. What will the world population probably be in the year 2000?
3. Where have new strains of rice been developed?
4. What did Borlaug produce?
5. What is experimental food being produced from?
6. What are the basic foods mentioned in the passage?

7. What is "demographic explosion"?

8. What problems will arise due to the demographic explosion?

- a) _____
- b)** _____
- c) _____
- d) _____

9. How are agricultural experts trying to increase the output of food in the world?

- a) _____
- b)** _____
- c) _____
- d) _____

10. What is 'hydroponics'?

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CRUDE OIL

Many years ago, when most people got their water directly from wells under the ground, they were sometimes annoyed by a dark liquid which came out of the ground and contaminated the water. It smelled bad and was extremely dirty. Some people discovered that it was good for caulking boats - it prevented water from getting in through the cracks in the wood. Others found it was a good medicine for the stomach. However, most people didn't like it. Today, we have a rather different opinion on this substance known as crude oil.

In 1855, a young teacher at Yale University, Benjamin Silliman, became interested in crude oil. He soon found that it could be used as a fuel for heating and lighting. After the first oil well started production, the age of oil was just around the corner. Today, LP. Getty and Howard Hughes, two of the richest men in the world, both have fortunes based on oil - the former on the Standard Oil Co. and the latter on a highly efficient oil-drilling bit.

The first oil from the sea was produced some decades ago by the off-shore drilling rigs in Maracaiba Bay, Venezuela. There, the water

20 is shallow and the oil is very near the surface. The tropical forest comes right down to the water's edge, and today it seems to continue into the sea. The oil is quite easy to get out in this area, but men are now also drilling in more difficult areas like the cold, deep North Sea between Great Britain and Norway.

25 The petroleum which comes out of the ground cannot really be used for anything. It must first be refined. Refineries are huge 'factories' where crude oil is separated into 'fractions', which are commonly known as gasoline, kerosene, diesel oil, lubricating oil and fuel oil. Then, these fractions must be distributed by pipeline or tanker to the final distributors, such as petrol stations, which sell them to the users.

30 Every person in industrial societies depends on crude oil. Its fractions provide fuel for electricity generators, power for vehicles, heat for homes and materials for clothing. In the future, we may use some of its fractions to produce food.

35 The question is: how long will the world's reserves of crude oil last? We use more and more oil every year. Crude oil is a non-renewable resource and one day it will probably run out. Many things will be different when this happens, but the most interesting and important question is what alternative sources of energy will be successfully developed.

A. What do the following refer to?

1. 'if' (line 6): _____
2. 'both' (line 13): _____
3. 'There' (line 17): _____
4. 'this' (line 36): _____

B. What do the following mean?

1. 'caulking' (line 5): _____
2. 'crude oil*' (line 25): _____

C.

1. Why were people annoyed by the dark liquid in their wells?
2. What was crude oil used for before 1855?

A FAMILIAR STORY

The voice on the other end of the line was insistent. "We need that contract and we need it badly. You know how bad our financial situation is at the moment - this contract could be the difference between life and death for us. I don't care how you do it, but you must get that contract." Tony Adamson put down the phone and sighed. He felt that his boss in London just did not understand how difficult things were for him in Zalesia. He knew that in reality his company had very little chance of getting the contract, which was to supply a large amount of furniture and other equipment to the new University of Zalesia. There were too many other companies interested - bigger companies that he knew would be able to offer equal quality, and probably a much better price.

Adamson's only hope was that he might be able to get the contract through a personal contact that he had inside the Ministry. During his three years as Eduquip's Marketing Manager in the area, he had developed a strong personal friendship with Elua Tahi, an official in the Ministry who Adamson knew was on the committee that was dealing with the University project. It wasn't unusual for contracts in Zalesia to be given because of friendship rather than price. Maybe, Adamson thought, he had more chance than he thought.

The next day, Adamson went to see Tahi in his office. For the first half hour they chatted about personal topics, and then Adamson introduced the subject of the contract. "This contract is important to you, isn't it?" said Tahi. Adamson nodded. "Yes, and we need your support on the committee. You've bought equipment from Eduquip before, for the Zalesian schools. You know our quality is good, and our delivery dates are reliable. Why change to a supplier you don't know, who might cause you problems?" "Yes," said Tahi. "Well, I'll see what I can do. But there are a lot of other companies interested too, of course. Oh, by the way, while you're here, there's a favour that I wanted to ask you." "Sure," said Adamson. "Anything I can do." "My wife has to have an operation, and she wants to have it in England. Obviously it's going to be expensive, and you know our government's rules about taking money out of the country. She really needs \$2000 waiting for her when she arrives in England. There's no way it could be organised, I suppose?"

For a moment Adamson was too surprised to speak. Tahi was clearly asking for a bribe. There was really no reason for him to be surprised - he knew that bribery was normal business practice in Zalesia, even though there were strict laws against it. Any company representative caught offering bribes to government officials risked up to five years'

imprisonment. But he had always previously thought that Tahi was different from the majority of Zalesian officials - that was why he had become so friendly with him. So far in Zalesia, Adamson had managed never to do anything that could be considered more than a small favour in order to win a contract. He did not believe in bribery, and certainly had no wish to spend any time in a Zalesian jail.

Tahi obviously noticed Adamson's confusion. "Don't worry," he said. "If it's a problem for you, there are others I can ask." His meaning was clear. If Eduquip didn't pay the bribe, another company would.

A. Mark the statements as True (T) or False (F).

- _____ 1. Tahi probably works at the Ministry of Education.
- _____ 2. Having a personal contact doesn't play a role in getting a contract in Zalesia.
- _____ 3. If you live in Zalesia, you can take a great sum of money out of the country.
- _____ 4. If a company representative is caught getting a bribe, he is sent to prison.
- _____ 5. Tony was sure Tahi would ask for a bribe.
- _____ 6. Tony doesn't approve of bribery.
- _____ 7. Except for some small favours, Tony had done nothing until then to win a contract.
- _____ 8. Tahi implied that the company that paid the bribe would get the contract.

B.

- 1. What does the company Tony works for produce?
- 2. Why was the contract so important for the company?
- 3. Why was it less possible for Tony's company to get the contract than the bigger companies who were interested?
- 4. What reasons did Tony give while trying to persuade Tahi to help them get the contract?
- 5. In what way did Tony think Tahi was different from other Zalesian officials?

THE CINEMA

The first moving pictures were developed in the 1890's by W.K.L. Dickson, an Englishman working in the USA. He called his system the Kinetoscope. It wasn't the cinema as we know it at all. The pictures were very small and only one person at a time could watch.

5 The earliest Kinetoscope used sound separately recorded on a phonograph (an ancestor of the gramophone and record player). But there were many problems involved in getting the picture and sound together, that is, synchronising. As a result, the Kinetoscope was popularised in its silent form. The same principle was developed by
10 the Frenchmen, Auguste and Louis Lumiere. They called their system the Cinematographe and, between 1895 and 1900, succeeded in exporting it to other parts of Europe, to India, Australia and Japan. The Cinematographe used a large screen, but the films were still very short - only about a minute long. Like the popularised Kinetoscope, it
15 was a silent system.

The early films were all made with fixed cameras. This greatly limited what could be achieved and made these early films more like the theatre than the modern cinema. So, an important improvement was the use of a moving camera, which could turn from side to side
20 and also move about to follow the action. *The Great Train Robbery* was the first important experiment in the use of a moving camera. It was made in 1903 by Edwin Porter, an American, and lasted eight minutes. In the following years, films became much longer and the screens larger. Other changes were introduced too, but it was not until
25 the early 1920's that an effective sound system was developed. Lee de Forest, another American, found a way of photographing the sound waves which accompanied the action. This solved the major problem of sound-picture synchronisation. A strange consequence of having sound was that, for a few years, the cameras were once again made a
30 part of a complex device and this sound-proofing system was so large that it could not be moved about easily.

The last major change in the cinema was the development of colour. Coloured photography had been possible from the 1860's, but early films were normally black and white and any colouring was
35 painted on by hand - an expensive, slow and not very effective technique. In 1922, the first real colour films were produced, using a two-colour system called Technicolor. In this system, they filmed whole sequences in one colour but the attempts to mix colours to get realistic effects were not very successful. In 1932, Technicolor was

40 improved by the use of three main colours and the same system is
 used today. Colour took longer to be generally accepted than sound. It
 was expensive and people often felt that it was less realistic than black
 and white. This was partly, of course, because the quality was not
 45 always very high and so the pictures could look very strange. Since
 the 1930's, there have been many improvements in the techniques of
 the cinema, and the style of acting has changed a good deal. But after
 fifty years, the basics - moving pictures, colour and sound - are still
 the same.

A. What do the following refer to?

1. 'It' (line 21): _____
2. This* (line 27): _____
3. 'it' (line 31): _____
4. 'the same system' (line 40): _____

B.

1. In what ways were the Kinetoscope and the Cinematographe similar and different? (Give one example for each.)
2. Why were the early films more like the theatre than the modern cinema?
3. What are the two improvements in the techniques of the cinema mentioned in the second paragraph?
 - a) _____ :
 - b) _____
4. Why was the achievement of Lee de Forest important?
5. What was the disadvantage of using the Forest's system?
6. How were black and white movies made coloured?
7. What was the purpose of mixing colours in the Technicolor system?
8. Did people accept colour films immediately? Why / Why not?

THE GORILLA

The gorilla is something of a paradox in the African scene. One thinks one knows him very well. For a hundred years or more, he has been killed, captured, and imprisoned in zoos. His bones have been mounted in natural history museums everywhere, and he has always
 5 exerted a strong fascination upon scientists and romantics alike. He is the stereotyped monster of the horror films and the adventure books, and an obvious (though not perhaps strictly scientific) link with our ancestral past.

Yet, the fact is we know very little about gorillas. No really
 10 satisfactory photograph has ever been taken of one in a wild state, no zoologist, however intrepid, has been able to keep the animal under close and constant observation in the dark jungles in which he lives. Carl Akeley, the American naturalist, led two expeditions in the 1920's, and now lies buried among the animals he loved so much. But
 15 even he was unable to discover how long the gorilla lives, or how or why it dies; nor was he able to define the exact social pattern of the family groups, or indicate the final extent of their intelligence. All this and many other things remain almost as much a mystery as they were when the French explorer Du Chaillu first described the animal to the
 20 civilised world a century ago. The Abominable Snowman, who haunts the imagination of climbers in the Himalayas, is hardly more elusive.

A. What do the following mean?

1. 'captured' (line 3): _____
2. 'mounted' (line 4): _____
3. 'stereotyped' (line 6): _____
4. 'link' (line 7): _____
5. 'intrepid' (line 11): _____
6. 'constant' (line 12): _____.
7. 'indicate' (line 17): _____
8. 'extent' (line 17): _____
9. 'elusive' (line 21): _____

B.

1. Why is the gorilla something of a paradox in the African scene?
2. What are the three basic facts about the gorilla which Carl Akeley, the American naturalist, failed to find out?
 - a) _____
 - b) _____
 - c) _____

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SPACE TRAVEL

- People have always wanted to know more about the other planets in our universe. Long ago, they found out that our earth is not flat but round, and that the moon goes round the sun. Telescopes were built to see planets far away in space better. But, of course, this was never
- 5 enough. Men have always thought about visits to other planets and many people have written stories about journeys in space and what men hoped to find there . Often the ideas in these stories are strange and wrong. We know that now because real men have visited space and can tell us what life there is like.
- 10 The work of scientists in the last twenty years has shown the world that men can travel outside the earth's atmosphere in spaceships. These scientists all worked on the same idea: space travel. But it is sad that they did not work together. There were two teams who worked separately, one in the USSR and one in the USA. Many of them were
- 15 Germans who left their country in 1945 after the Second World War. Wernher Von Braun, who worked for the USA, was the most famous one. They all tried to build rockets to go into space. Each of these countries wanted to be the first in space. So a race into space was started.
- 20 In 1957, the world outside the USSR learned a new word: 'sputnik'. This is the Russian word for a satellite, a planet which goes round and round another planet. A real satellite (like the moon, which is the earth's satellite) makes a circle round its planet, called an orbit. Sputnik I, which was a small satellite, went into the earth's orbit and
- 25 sent back radio signals. Then, after a month, Sputnik 2 followed. And this time, Laika, a dog, was aboard.

Then the USA came into the race. The first satellite they tried to send into space caught fire. The second, Explorer I, went into orbit without any problems and sent back a lot of interesting information about the earth's atmosphere.

For a journey to the moon, scientists had to build new spaceships. These new spaceships, called 'probes', could move in space freely. Again the Americans tried several times, but could not launch their first moon probe. The Soviets also had problems with their probes, called Luniks. At last, Lunik 3 reached the moon and went into orbit round it. For the first time people on earth saw pictures of the other side of the moon.

In 1961, the Soviets were ready to take a risk. Yuri Gagarin flew into space. This 27-year-old Soviet was the first real spaceman. His spaceship made one orbit of the earth, and then landed safely. A few weeks later, the first American astronaut, Alan Shepard, followed him into space. Soon more Americans and more Soviets saw the world from space. They said it was very beautiful. Flights continued and men stayed in space longer and longer.

Finally, in 1969, after long preparations, the USA was ready for the longest space journey in all those years. Apollo 11 was sent to the moon with three astronauts. They brought back rock pieces and moon dust for the scientists to examine.

A. What do the following refer to?

1. 'there' (line 7): _____
2. 'one' (line 17): _____
3. 'This' (line 21): _____
4. 'him*' (line 41): _____
5. 'if (line 43): _____

B. Mark the best choice.

1. Line 4, 'this' refers to _____.
 - a) planets far away in space
 - b) telescopes
 - c) seeing planets better
 - d) learning about the earth
2. Line 8, 'that' refers to _____.
 - a) the ideas in the stories
 - b) the strange stories
 - c) what the men hoped
 - d) that the ideas are wrong

EXPLORATION FOR OIL

Petroleum, or oil, is the world's most important source of energy. It is produced in more than sixty countries throughout the world, but there are mainly six important petroleum producing regions in the world. The problem is: how can we determine the possible regions for oil? Drilling a well is a difficult and expensive operation. Therefore, an oil company first looks for good indications, or signs, of oil in an area. The aim of this exploration is to discover the best areas for drilling.

There are four stages in the process of exploration: aerial surveys, a geological survey, a geophysical survey and exploration drilling.

In an aerial survey, a survey of the area is made from an aeroplane. There are two different types of aerial survey: the photographic and the magnetic. During the former, photographs are taken from an aeroplane, showing the most important geological features on the earth's surface. Maps are made from these photographs. During the magnetic survey, the earth's magnetism is recorded. Rock formations under the earth's surface differ from place to place. As a result, the intensity of the earth's magnetism and the thickness of the rocks are not the same everywhere. The measurements are analysed and in this way information is obtained about the rock formations. The geologists then look for signs of oil in these formations. If the indications are good, exploration continues.

A geological survey is the next stage. Certain rock formations are visited. By examining these structures, geologists learn about the shape and direction of the rock formations under the surface. Samples of rock are taken to the laboratory and analysed. If the samples contain fossils, these will indicate the age of the rock. Fossils of marine animals show that there may be oil in the area.

Geophysical surveys are used to confirm the results of geological surveys. During a geophysical survey, an explosion is made on the earth's surface. The rocks under the earth vibrate. These vibrations, called seismic waves, travel down into the earth. Some of them, however, are reflected by rock layers under the surface and 'heard' by special equipment. The waves are recorded on a seismogram. Analysis of this information shows the depth and type of rock formations.

All these surveys can help to locate structures under the earth's surface. But still there may be no oil. There is only one way to be sure, and that is to drill a well. The first wells are called exploration wells or wildcats. A wildcat without any oil is called a dry hole. A discovery well is wildcat with some oil. When oil is discovered, several more wells are drilled in the same field. These are known as production wells.

Exploration for oil is a long, difficult and expensive process. However, it reduces drilling, which saves money.

1. What is the third stage in the process of exploration for oil?
2. What is a discovery well?
3. What is the only one way to be sure that there is oil under the earth's surface?
4. Why are seismic waves recorded on a seismogram during the geophysical survey?
5. Why are certain rock formations visited during a geological survey?
6. Why are the intensity of the earth's magnetism and the thickness of the rocks not the same everywhere?

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THE COMPUTER

With a tremendous roar from its rocket engine, the satellite is sent up into the sky. Minutes later, at an altitude of 300 miles, this tiny electronic moon begins to orbit the earth. Its radio begins to transmit a staggering amount of information about the satellite's orbital path, the amount of radiation it detects, and the presence of meteorites. Information of all kinds races back to the earth. No human being could possibly copy down all these facts, much less remember and organize them. But an electronic computer can.

The marvel of the machine age, the electronic computer, has been in use only since 1946. It can do simple computations - add, subtract, multiply, and divide - with lightning speed and perfect accuracy. It can multiply two 10-digit numbers in 1/1,000 second, a problem that would take an average person five minutes to do with pencil and paper. Some computers can work 500,000 times faster than any person can.

Once it is given a 'program'; that is, a carefully worked-out set of instructions devised by a technician trained in computer language, a computer can gather a wide range of information for many purposes. For the scientist, it can get information from outer space or from the depths of the ocean. In business and industry, the computer prepares factory inventories, keeps track of sales trends and production needs, mails dividend checks, and makes out company payrolls. It can keep bank accounts up to date and make out electric bills. If you are planning a trip by plane, the computer will find out what route to take and what space is available.

Not only can the computer gather facts, it can also store them as fast as they are gathered and can pour them out whenever they are needed. The computer is really a high-powered 'memory' machine that "has all the answers" - or almost all. What is the most efficient speed for driving a car through the New York-New Jersey tunnels? What brand of canned goods is the most popular in a particular supermarket? What kind of weather will we have tomorrow? The computer will flash out the answers in a fraction of a second.

Besides gathering and storing information, the computer can also solve complicated problems that once took months for people to do. For example, within sixteen hours an electronic brain named CHEOPS (which stands for Chemical Engineering Optimization System) solved a difficult design problem. First, it was fed all the information necessary for designing a chemical plant. After running through 16,000 possible designs, it picked out the plan for the plant that would produce the most chemical at the lowest cost. Then, it issued a printed set of exact specifications. Before CHEOPS solved this problem, a team of engineers having the same information had worked for a year to produce only three designs, none of which was as efficient as the computer's.

At times computers seem almost human. They can 'read' handprinted letters, play chess, compose music, write plays, and even design other computers. Is it any wonder that they are sometimes called 'thinking' machines?

Not even computers can predict the future, but the benefits of computers are becoming more obvious every day.

a) Computers are being used in space travel. Rockets, satellites and spaceships are guided by computers.

b) Computers are being used in aviation. They are used in the training of airline pilots. Computers also direct the flight of planes from one city to another, control their air speeds and altitudes, and even land them.

c) Computers are being used in medicine. They are used in analyzing blood samples, in diagnosing disease, and in prescribing medication. They also keep records of the tissue types of patients waiting for organ transplants.

Even though they are taking over some of the tasks that were once

accomplished by our own brains, computers are not replacing us - at least not yet. Our brain has more than 10 billion cells. A computer has only a few hundred thousand parts. For some time to come, then, we can safely say that our brains are at least 10,000 times more complex than a computer. How we use them is for us, not the computer, to decide.

1. What was the name of the electronic brain that designed the chemical plant?
2. How long did it take CHEOPS to work out the design problem?
3. What kind of information was CHEOPS fed?
4. What plan did it pick out?
5. How long had a team of engineers been working on the same information?
6. What is guided by computers?
7. What uses do computers have in aviation?
8. How do computers help doctors?
9. How many cells does the human brain have?
10. How many times more complex are our brains than a computer?

ELECTRON THEORY

At one time, students used to be told: "We don't know what electricity is, we don't know how electricity goes through a solid wire," etc. The electron theory explains these things clearly and simply. In addition, it explains the true meaning of voltage, resistance, etc. Therefore, an understanding of the electron theory is basic to the understanding of the electrical and electronic theory.

Scientists now agree that our universe is basically dependent on two factors, one of which is matter, the other, energy. Matter is anything that occupies space and has weight. It can exist in any of the three forms: solid, liquid or gas.

Matter is composed of protons, neutrons and electrons. The proton has a positive charge. This component has very little weight. The neutron has no charge, but it supplies almost all the weight of matter. The electron has a negative charge. It also has very little weight. If we could look at the structure of a piece of copper, we would find that it consists of a specific number of protons, neutrons, and electrons arranged in some particular way. In a piece of iron, a certain number of protons, neutrons, and electrons are arranged in a different way. The proton of iron is identical to that of copper and other elements. They are all made up of the same components. It is the arrangement of these components that makes them different.

The electrons of an atom are arranged in shells around the nucleus. The electrons in the last shell are called 'valence' electrons and the electrical properties of a material are dependent on the number of such electrons. Atoms with less than four valence electrons give up one or more electrons, and the fewer the valence electrons, the easier this becomes. Atoms with more than 4 electrons in their last shell take one or more additional electrons. The conduction of electricity is made possible by the free electrons in the outer shell.

Metals are good conductors of electricity as they have less than 4 valence electrons. These electrons aren't strongly attached to the nucleus, but the ones in the inner shell are. Therefore, in a metal, they can move easily from one nucleus to another.

HYDROPONICS

Hydroponics is the technique of growing plants in water. It is generally thought that plants need soil for growing. In fact, what they need is the nutrients (vitamins and minerals) and moisture contained in the soil and these can be supplied through water, as well as through soil.

Hydroponics is not a new process. As long ago as the 1690's, an English physician tried growing plants in water in a laboratory experiment. However, it was not until the 1800's that German researchers used this method to develop many of the formulas for plant nutrient solutions still in use today.

About a generation ago, hydroponics moved out of the research laboratory into practical use. In the past 40 years, hydroponic farming has progressed in a number of areas, especially in those where water is in short supply and temperatures are too extreme for ordinary agriculture. This is because hydroponic farming is the only economical solution in such desert areas.

Each year, more than 2.7 million kilograms of vegetables and fruit are produced by hydroponic farming. These are mostly tomatoes but cucumbers, lettuce and melons are also grown. On hydroponic farms, each tomato plant produces an average of 6 kilograms of fruit twice a year - a total of 12 kilograms every year. An ordinary soil-grown plant, on the other hand, produces only a total of 9 kilograms per year.

In hydroponic farming, plants are grown in greenhouses. The greenhouses measure 8 by 39 metres and consist of steel frames covered with strong transparent plastic that is resistant to weather and lets in a maximum amount of light. The plants are fed by inorganic nutrients dissolved in water which is supplied by a plastic pipeline. The feeding and watering system is automated. Electric sensing devices (sensors) determine when the plants are hungry or thirsty. The sensors send messages which automatically start the water and nutrient delivery system. When the sensors 'know' that the plant have had enough, the system turns off automatically.

Nothing is left to chance within the greenhouses. Temperature, humidity and air circulation are carefully controlled. Air conditioning and heating equipment keep the temperature at 29°C by day and 18°C by night.

In recent years, hydroponic farming has expanded to many parts of the world. An application of the method has occurred in Italy, for example, where the largest hydroponic installation - 50,000 square

35 expansion of such a bar, due to heating, may be used to operate switches and valves.

In a gas refrigerator, there is a reservoir containing ammonia water. When the lower gas flame is burning, the ammonia water rises through the tube to the 'generator'. The upper gas flame drives off the
40 ammonia gas, which passes into the 'condenser'. The cold air around the condenser rapidly brings down the temperature of the gas. Then the cooled gas, now condensed into a liquid, passes into the 'evaporator', which contains hydrogen. In the evaporator, the ammonia
45 expands rapidly, especially since its expansion in hydrogen is greater than it would be in air. This rapid expansion greatly lowers its temperature. It is the cooling of the gas in the evaporator which lowers the temperature of the whole refrigerator and freezes the water in the ice-cube trays.

A. What do the following refer to?

1. 'it' (line 4): _____
2. 'they' (line 11): _____
3. 'doing so' (line 11): _____
4. 'do*' (line 13): _____
5. 'one' (line 18): _____
6. 'Many' (line 19): _____
7. MV (line 31): _____
8. 'if' (line 32): _____
9. 'such a bar' (line 35): _____

B. Mark the best choice.

1. In selecting a good refrigerant, we must choose one that _____.
 - a) evaporates quickly
 - b) is cheap
 - c) is not explosive
 - d) All of the above.
2. When a substance in gaseous form is allowed to pass through a small hole,
 - a) unlike the molecules of evaporating liquids, it absorbs heat energy from its surroundings
 - b) like the molecules of evaporating liquids, it absorbs heat energy from its surroundings
 - c) it might absorb heat energy from its surroundings
 - d) it absorbs heat energy from the pump

ANTI-RADIATION PILLS FOR FAMILIES

By Jenny Hope

Nearly 1,000 people living near Britain's oldest nuclear power station are to be given anti-nuclear pills. It is the first time the tablets - potassium iodate - have been issued for emergency use to the public. The move has been ordered by Gloucestershire County Council as part of a plan in case of an accident at the Berkeley Power Station, which is 20 years old. The council thinks such a safety improvement is necessary before the power station's operating licence can be extended until the year 2000.

The anti-radiation tablets stop the thyroid gland from absorbing harmful radioactive iodine by flooding it with a harmless form of the chemical. They have only ever been taken once in Britain. That was when they were issued two years ago to the workers at Hinkley Point Power Station in Somerset during a leak of radioactive gas on the site. The tablets will be given to 100 people living and working on 28 farms near the Berkeley Power Station and 750 people working in factories in the industrial area near the reactor and will be taken only if there is a leakage in the plant.

Privately, the council is worried that distributing the tablets will cause unnecessary alarm among the population.

Mark the statements as True (T) or False (F).

- _____ 1. Anti-radiation pills are potassium iodate tablets which prevent people from taking in radioactive iodine.
- _____ 2. The tablets will be distributed to workers employed at the Berkeley Power Station.
- _____ 3. Anti-radiation pills are distributed only to be used if there is an accident at the power station.
- _____ 4. The panic caused by the distribution of the tablets has been prevented by the explanations of the council.
- _____ 5. In Britain, the tablets were first given to the workers at Hinkley Point Power Station.

CROCODILES

Crocodiles are formidable enemies of man and most of the stories about them arise from tragic real experiences. At least 6 of the 23 species
1 in the crocodile family will attack and eat human beings if they can, and many of the others are large enough to cause serious injury.

The well-known Nile crocodile, found from Egypt to the Cape of Good Hope, has a length of 5 metres. It is reported that crocodiles kill up to 1,000 people every year along the banks of the River Nile. Equally
2 large and dangerous is the man-eating salt water crocodile, whose habitat ranges from India and China to northern Australia. The largest of all is the Madagascar crocodile, which may grow to 9 metres or longer, and the most dangerous is the Estuarine crocodile, which probably kills over
2,000 people each year.

Crocodiles have narrow, pointed snouts and rows of teeth in the lower jaw. The teeth can be seen even when the mouth is closed. The body is
3 protected by thick leathery plates and the animal has webbed feet as well as a powerful, flattened tail. Baby crocodiles are greenish grey with black crossbands whereas most adults are olive coloured.

Sewage and garbage attract crocodiles by providing a rich diet which unfortunately inflames their aggression. That's probably why there are constant horror stories about the danger of crocodiles growing in sewage systems and waste dumps of big cities in Africa. However, this is
4 certainly true for the city of Manzini in Swaziland, where the health officials captured man-eating crocodiles and put them to work in the city sewers and dumps to gobble up garbage. Now, the job is done cheaply and effectively!

Among the many legends about crocodiles, there are those of living to be a hundred years old. However, most crocodiles live for about fifty years. The oldest official age recorded is that of a crocodile which was
5 born in Dresden Zoo in Germany in 1880 and which was recorded as being still alive in 1937. In fact, it might have lived on much longer if the zoo had not been completely destroyed in the Second World War.

Hatred has made the hunting of crocodiles so popular that the world population of them has been drastically reduced. Some 16 species are
6 now almost extinct - among them the rare Cuban crocodile, which has been reduced to a mere 300 individuals living in a protected sanctuary in Cuba.

CAT

- 1 High on a hill in Mid-Wales near Machynlleth, a group of idealists have shown that man can harmlessly draw energy from nature.
- 2 In the past 13 years, this group, some 30 adults with their children, has demonstrated the success of harnessing the energy of the sun, the wind and the rain to generate sufficient power for their needs.
- 3 Although they were not taken seriously by locals as the 'hippies in the hills' when they first moved to the disused mining site a few miles from Machynlleth, their projects and enthusiasm have won them the support of the local people, big business, and international respect.
- 4 Opposed to the government's plans for both nuclear power and coal, the Centre for Alternative Technology is striving for a programme using renewable fuels which would protect the planet's future. "The way the world is going, we could actually run out of known forms of energy before we actually blow ourselves up," says Tim Kirby, an engineering graduate and CAT's technical officer.
- 5 The centre uses windmills, water turbines and soku: panels to heat and effectively provide for all its facilities, and the group believes that there is no reason why such technology should not power the entire UK.
- 6 The CAT people live off the land, on organically-grown fruit and vegetables and naturally-bred animals. Some are vegetarian; all believe in a low meat diet. Most members of staff live on the site; others choose to emulate the lifestyle in the surrounding area.
- 7 While most of us were complaining about the lack of sunshine this summer, water pipes heated from solar panels at Machynlleth were red hot after just a couple of hours of autumnal sun. "Few people realise the power of the sun's rays." says Mr. Kirby. He claims that the owner of a house with a wall of solar panels now pays around £75 a year on fuel bills as opposed to £500 for the average house.

A. Find words in the text which mean the same as the following.

1. make a great effort to get something done (paragraph 4): _____
2. imitate, copy (paragraph 6): _____

MATHEMATICS

To meet the demands of industry, technology, and other sciences, mathematicians have had to invent new branches of mathematics and expand the old ones. They have built a superstructure of new ideas that people who are trained in the classical branches of the subject would hardly recognise as mathematics at all.

Applied mathematicians have been dealing with the world's problems successfully, while pure mathematicians seem almost to have lost touch with the real world. To them, mathematics is an art and they don't care much whether it will ever have any practical use.

By applying the concepts of mathematics to worldly problems, the applied mathematician can often brush away the obscuring details and reveal simple patterns. Celestial mechanics, for example, enables astronomers to calculate the positions of the planets at any time in the past or future. Now, this ancient branch of mathematics has suddenly become very practical for calculating the orbits of Earth satellites.

Applied mathematicians, who are interested in worldly problems, have learned to solve many of them that were almost impossible to solve ten or twenty years ago. They have developed new statistical methods for controlling quality in high-speed industrial mass production. They have built the basis for Operations Research, which businessmen use to plan production and distribution. They have dealt with the complexities of human behaviour through 'game theory', which applies to military and business strategy. They have analysed the design of automatic controls for such complicated systems as factory production lines and supersonic aircraft. Now they are ready to tackle many problems of space travel.

Mathematicians have begun to turn their attention to the biological and social sciences as these sciences have started to use mathematics. The bond between mathematics and life sciences has been strengthened by a group of applied mathematics specialties, such as biometrics, psychometrics and econometrics.

Now that they have electronic computers, mathematicians are solving problems that they could never solve a few years ago. In a few minutes, they can get an answer that previously would have required months or even years of calculation. Furthermore, in designing computers and programming them to carry out instructions, mathematicians have had to develop new techniques. Computers have contributed very little to pure mathematical theory, but they have been used to test certain relationships among numbers.

ATOMS (2)

In 1805, the English chemist and physicist, John Dalton, stated that all matter consists of small particles which he called 'atoms'.

5 Dalton's theory, which helped to explain many different observations that he and other scientists had made, has been supported and changed by scientists since his time, but it is basic to an understanding of chemistry and biology today.

10 The word 'atom' comes from a Greek word which means 'indivisible'. However, scientists in our century have found that atoms are not indivisible. All atoms are made up of different combinations of three smaller particles: electrons, neutrons and protons. Electrons are the main units of electricity and they carry a negative electrical charge (-). Protons carry a positive electrical charge (+). Neutrons, as their name suggests, are neutral. They carry no electrical charge.

15 How are these particles arranged inside the atom? The protons and neutrons together form the nucleus of the atom. The nucleus is in the centre and occupies a very small amount of the total space of the atom. All the rest of the empty space in the atom is used by the rapidly moving electrons. As a result of these rapid movements of electrons, an 'electron cloud' is formed around the nucleus. They seem to be
20 everywhere at once. The number of electrons outside the nucleus equals the number of protons inside the nucleus. Thus, an atom is electrically balanced, or neutral. All chemical reactions involve only electrons, which travel around the nucleus in different orbits. These
25 electrons can interact with the electrons of another atom to form compounds. The nucleus of an atom is not changed in a chemical reaction. It is changed only in nuclear reactions, which occur, for example, in radioactive minerals and in atomic reactors.

30 Atoms of different elements differ from one another in the number of protons, neutrons and electrons. On the other hand, atoms of the same element always have the same number of protons and electrons, although they may differ in the number of neutrons. These are called isotopes. For example, over 99% of all the oxygen atoms in nature are made up of 8 protons, 8 neutrons and 8 electrons. This is known as the Oxygen-16 isotope. 16 is the sum of the number of protons and
35 neutrons. (The number of electrons is not included in this number because the number of electrons is the same as that of protons.) However, there is also a small amount of the Oxygen-18 isotope, whose atoms contain 8 protons and 10 neutrons.

Isotopes are important in biology because they can be used in

40 following many processes in living cells. Radioactive isotopes are the
most useful ones for this purpose. The nuclei of radioactive isotopes
are not stable. They give off radiation and finally come apart. The
radiation can be detected with a Geiger counter. For example, the
45 radioactive isotope of carbon, Carbon-14, has helped biologists to
follow the path of carbon in many complicated reactions inside living
cells.

Many of the chemical elements which occur in nature are made up
of mixtures of non-radioactive isotopes with stable nuclei. Others are
composed of radioactive isotopes. In addition, radioactive isotopes of
50 all the chemical elements can be produced artificially. These are
called radioisotopes.

The most important source of radioisotopes is the atomic reactor,
which yields large quantities of some isotopes from the fission of
uranium. Other radioisotopes may be produced by the bombardment
55 of suitable elements by neutrons in the reactor and some others by
nuclear reactions.

A. What do the following refer to?

1. 'if (line 5): _____
2. 'these particles' (line 14): _____
3. 'If (line 26): _____
4. 'they' (line 31): _____
5. 'Others' (line 48): Other _____

B. Mark the best choice.

1. Compounds are formed _____.
 - a) as a result of the rapid movements of the electrons
 - b) because electrons travel in different orbits around the nucleus
 - c) when the nucleus is changed in nuclear reactions
 - d) when the electrons of an atom interact with those of another atom
2. A chemical reaction _____.
 - a) helps to form an 'electron cloud' around the nucleus
 - b) causes no change in the nucleus and it involves only electrons
 - c) causes the electrons to move in different orbits
 - d) causes a change in the arrangement of all the particles of an atom
3. Which of the following statements is true?
 - a) The nuclei of radioactive isotopes give off radiation and they are stable.
 - b) There are several ways of producing radioisotopes artificially.
 - c) The number of protons, neutrons and electrons are always the same in the atoms of the same element.
 - d) Both (a) and (b).

TRANCE

5 The word 'hypnosis' comes from the Greek word 'hypnos', which means 'sleep'. Although it is hard to define hypnosis, because it has many aspects and degrees, it might be said that hypnosis is a kind of trance (a sleeplike condition) in which the subject responds strongly to the suggestions of the hypnotist. It is difficult to know exactly what changes hypnotism produces in the functioning of the nervous system or the personality.

10 There are many theories on hypnosis, but no single theory is accepted as completely explaining all aspects of hypnosis. One of the oldest theories regards hypnosis to be a form of sleep. This concept originated in 1784, and was further developed by Ivan Pavlov. However, this theory is contradicted by evidence which indicates that the hypnotized person is not asleep: the knee reflex, which is absent in sleep, is present in the hypnotic state, and recordings of brain waves
15 show the typical patterns of the state in which we are awake.

Methods of putting a subject into a trance have changed in recent years. Very few modern hypnotists use the old method of staring into the subject's eyes. Instead, they use methods which emphasize relaxing or even sleep. The subject sits in a comfortable chair while
20 the hypnotist talks quietly, giving the subject directions and suggestions which lead him slowly into a trance. The hypnotist watches for signs for this state. For example, many subjects don't talk when they are in a trance. Instead of talking, they nod or shake their heads when they have to answer the questions the hypnotist asks them.

25 The hypnotic trance may be classified according to its degree, which depends partly on the hypnotist and partly on the subject.

In a light trance, the eyes are closed, breathing becomes slower and the subject is able to carry out simple suggestions. The subject is usually unable to open his eyes or move his arms if the hypnotist tells
30 him that he cannot.

In a medium-deep trance, the subject is able to experience feeling of movement even though he is not moving. After coming out of the trance, the subject may not remember what happened during the time he was in a trance.

35 In a deep trance, the hypnotist can produce very unusual effects. For example, he may tell the subject that, when he comes out of the trance, he will think that he sees a clock on the wall and that he will look at it and say it is midnight even though it's four o'clock in the afternoon. When he comes out of the trance, the subject will do what

40 he is told to do, but he may not remember anything about what happened in the trance.

In contrast to many people who can be put into a deep trance quite easily, there are others who are not affected at all. The number of such people constitutes about 20% of the population, but this percentage
45 may be higher among people who are 55 or older. Also, subjects who try too hard to fall into a trance may actually be difficult to hypnotize just like those who are afraid or suspicious of hypnosis or the hypnotist. People who resist the process can't be hypnotized either. However, some experimenters have reported that it was easier to
50 hypnotize people who did not know they were being hypnotized. These subjects were patients who needed treatment for various kinds of nervous conditions. They were simply told that the doctor would teach them how to relax.

Contrary to popular belief, there is no possibility of the subject not
55 awakening as a result of an accident to the hypnotist. It is also not true that a hypnotized subject is completely under the will or power of the hypnotist.

A. What do the following refer to?

1. This concept' (line 10): _____
2. 'him' (line 21): _____
3. 'he' (line 36): _____
4. 'such people*' (lines 43-44): _____
5. These subjects' (line 51): _____

B. Mark the best choice.

1. The theory which regards hypnosis as a form of sleep _____.
 - a) is still accepted by many scientists
 - b) was first established by Ivan Pavlov in 1784
 - c) cannot be accepted because of the evidence which proves just the opposite
 - d) Both (b) and (c).
2. In modern methods of hypnotic trance _____.
 - a) everything depends on the hypnotist
 - b) relaxing plays an important role
 - c) most hypnotists prefer to stare into the subject's eyes
 - d) subjects are asked not to talk while they are in a trance

3. Which of the following statements is true?
- a) There are theories which explain hypnosis satisfactorily.
 - b) If something happens to the hypnotist after hypnotizing a subject, the subject may not come out of the trance.
 - c) The hypnotist can take every subject completely under his power.
 - d) After coming out of medium-deep or deep trances, the subjects may not remember what happened during the trance.

C. What kind of people are likely to be difficult or impossible to hypnotize?

- a) _____:
- b) _____

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STAYING UNDERWATER

Until man invented ways of staying underwater for more than a few minutes, the wonders of the world below the sea were almost unknown. The main problem, of course, was air. How could air be supplied to swimmers below the surface of the sea? Pictures made
5 about 2,900 years ago in Asia show men swimming under the surface with air bags tied to their bodies. A pipe from the bag carried air into the swimmer's mouth. Yet, little progress was made in the invention of diving devices until about 1490, when the famous Italian painter, Leonardo da Vinci, designed a complete diving suit.

10 In 1680, an Italian professor invented a large air bag with a glass window to be worn over the diver's head. To 'clean' the air, a breathing pipe went from the air bag, through another bag to remove moisture, and then again to the large air bag. The plan did not work, but it gave later inventors the idea of moving air around in diving
15 devices.

In 1819, a German, Augustus Siebe, developed a way of forcing air into the head-covering by a machine operated above the water. Finally, in 1837 he invented the 'hard-hat suit', which was to be used for almost a century. It had a metal covering for the head and an air
20 pipe attached to a machine above water. It also had small openings to remove unwanted air. But there were two dangers to the diver inside the hard-hat suit. One was a sudden rise to the surface, caused by too great a supply of air. The other was the crushing of the body, caused by a sudden dive into deep water. The sudden rise to the surface could
25 kill the diver; a sudden dive could force his body up into **the** head covering, which could also result in death.

Gradually, the hard-hat suit was improved so that the diver could be given a constant supply of breathable air. The diver could then move around under the ocean without worrying about his air supply.

30 During the 1940's, diving underwater without a special suit became popular. Instead, divers used a breathing device and a face-mask, i.e., a small covering worn on the face made of rubber and glass. To increase the swimmers' speed another new invention was used - rubber shoes shaped like giant duck feet called flippers. The
35 manufacture of snorkels, which are rubber breathing pipes, made it possible for the divers to float on the surface of the water, observing the marine life below them. A special rubber suit which prevented heat loss made diving comfortable enough to collect samples of plant and vegetable life even in icy waters.

40 The most important advance, however, was the invention of a self-contained underwater breathing apparatus, which is called a 'scuba'.

Invented by two Frenchmen, Jacques Yves Cousteau and Emile Gagnan, the scuba consists of a mouthpiece joined to one or two tanks
45 of compressed air which are attached to the diver's back. The scuba makes it possible for a diver-scientist to work 200 feet underwater - or even deeper - for several hours. As a result, scientists can now move around freely at great depths, learning about the wonders of the sea.

A. What do the following refer to?

1. The other* (line 23): The other _____
2. 'them' (line 37): _____
3. 'which' (line 45): _____

1. How was fresh air supplied to the diver inside the hard-hat suit?

2. How was unwanted air removed from the hard-hat suit?

3. What were the dangers to the diver inside the hard-hat suit?

- a) _____
- b) _____

DISTILLING OIL

When plants and animals die, they normally decay, helped along by fungi and bacteria in the environment. Once decomposed, they provide nutrients for living organisms, and the respiration of fungi and bacteria causing decay releases carbon dioxide into the atmosphere.

5 Over a period of several hundred million years, however, comparatively small amounts of organic material have remained under layers of silt, soil or volcanic rock and, as there is no oxygen, have not fully decomposed. Instead, they have formed deposits of coal, natural gas and oil, often located far below the land surface or the sea-bed.

10 Oil is usually found in porous rock under a layer of hard rock which prevents it from escaping. It can, then, only be reached by drilling. The initial rush of oil out of a drill pipe is caused by the pressure of the gas compressed immediately above the oil deposits. In time, this pressure decreases and the oil has to be pumped to the
15 surface.

Raising oil from below the sea-bed is an immensely difficult and dangerous operation. Although drilling engineers are exposed to high winds and heavy seas, they have to make test bores to see if it is worth exploring further. After they are satisfied that they have found an
20 oilfield, they set up a platform. The quality of the oil which is piped up to the surface varies, but it all has to be brought ashore. This is done either by pumping it along pipelines or carrying it in tankers. In the North Sea, as they are constantly threatened by the weather, the big oil companies have, on the whole, preferred pipelines. In other
25 locations, where they are favoured by better weather conditions, they often use tankers.

The crude oil raised directly from wells is not yet ready for use. It has to be refined. The first stage in this process is fractional distillation in a fractionating column. Those fractions, such as petrol and
30 kerosene, which are lighter and more volatile, move towards the top of the column before condensing. The heavy residual fuel at the base of the column is extremely impure.

The fractional distillation of crude oil results in the production of several useful substances, all of them normally liquids except the gas
35 from the top of the column and the solid residue at the base. Straight petrol, which vaporizes between 30° and 200° Centigrade, is used (when mixed with petrol produced from kerosene and heavy gas oil) as fuel for motor cars. The gas, which boils between 20° and 164°C, also has a use - many households rely on it for heating and cooking.

40 Kerosene has, of course, become invaluable as the fuel consumed by
jet planes. It boils between 200° and 300°C, whereas heavy gas oil
and fuel oil vaporize within the range 300°C. The former is used to
produce diesel fuel for lorries, buses and some cars, and the latter is
45 redistilled to produce other fractions. The heavier fractions, such as
petroleum jelly and paraffin, the former with a boiling point over
350°C and the latter with a melting point between 52° and 57°C, have
a variety of uses. Petroleum jelly is a useful lubricant and is used on
the skin, and paraffin is the main component of wax candles. The
pitch and tar at the bottom of the column, which boil at over 430°C,
50 are used to make asphalt. So, there is little wastage.

But distillation does not produce enough high grade petrol to meet
today's high demand. The petrol offered for sale to motorists is a
mixture of straight petrol and distilled petrol produced by chemical
modification from certain other distillates.

A. What do the following refer to?

1. 'they*' (line 2): _____
2. 'this process' (line 28): _____
3. 'the latter' (line 46): _____
4. 'which' (line 49): _____

1. What prevents total decomposition of dead plants and animals?

2. Why can oil only be reached by drilling?

3. How can oil be brought ashore from an oil platform?

4. What determines the method used for bringing oil ashore?

PATTERNS OF OCEAN LIFE

A striking example of how man can drastically alter the interdependence patterns of ocean life has occurred off the coasts of southern California. In the nineteenth century, these waters had a large population of that busy little animal called the sea otter, which ate sea urchins*, which, in turn, fed on large brown algae called kelp. Sea otters almost totally disappeared due to fur traders who encouraged hunters to kill off otters for their valuable furs. With the disappearance of the otter, sea urchins started to reproduce in vast numbers, leading to a great increase in their population. This caused sea urchins to almost entirely exhaust kelp beds. At this point, man had replaced the original balance of nature with a new pattern: The sea urchins, which previously had been the prey of the sea otter, had become the predator* and the kelp had become the new prey. As the kelp began to disappear, sea urchins began to starve. With the reduction of the urchin population, the kelp managed to reproduce and increase their numbers. Yet, the sea urchins again increased and so on. A cycle taking from 10 to 12 years started to repeat itself.

A further step came when sewage pollution caused an additional destruction of kelp - not because sewage kills kelp but because sewage feeds sea urchins, which once again increased in numbers with this new source of food . If sea otters had been present in sufficient quantities, the kelp beds would still be abundant. In order to re-establish the proper balance in the eco-system, marine biologists have put forward a number of solutions. In time and with the help of man, nature may regain its previous order.

* sea urchin: a small ball-shaped sea animal with a hard shell and many sharp points

* predator: an animal that lives by killing and eating other animals

A. What do the following refer to?

1. 'these waters' (line 3): _____
2. 'this new source of food' (lines 20-21): _____

B. Find words in the text which mean the same as the following.

1. change (paragraph 1): _____
2. completely, totally (paragraph 1): _____
3. use up (paragraph 1): _____

4. but (paragraph 1): _____
5. more than enough (paragraph 2): _____
6. propose, suggest (paragraph 2): _____

C.

1. Why did the number of sea otters in California fall abruptly?
2. What was the cause of the exhaustion of the kelp beds?

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GROWING UP

When we are young, the house where we live is our whole world. Everything is provided for us - food and shelter, warmth and love. We obey our parents without question, because if mummy and daddy say it, it must be right. Every experience we have is classified as good or bad according to their reaction. We quickly learn to do those things which earn their praise, and to avoid doing those things which upset them and earn their disapproval.

As we grow older, we are more and more exposed to outside influences - school, friends and other adults. We soon start to realise that there are other values which are different from those our parents hold. For example, your parents have told you that some words, such as 'bloody', are swear words, and they have forbidden you to use them. However, in your friend's house, everyone - children and grown-ups - says things like 'Bloody hell!' when they are annoyed and no-one seems to think that there is anything wrong with it. You are confused; you wonder what the right thing to do is. You try to resolve the conflict of values between two groups of people - your parents on the one hand, and your friend's parents on the other - for whom you have equal respect. Eventually what happens is that we start to lead double lives; we reserve some forms of behaviour for the home, and others for the world outside the home.

The real conflict starts when we reach adolescence. We begin to question everything and everyone, including our parents and their values, because we want to establish our own independent values. Unfortunately, as long as we are living at home and are dependent on our parents, we cannot lead our own lives according to our own views

of right and wrong. The trouble is that if our parents give us more freedom, we are bound to make mistakes, and they will wonder if they have given us too much freedom. On the other hand, if parents allow
30 too little freedom, their teenage children are likely to become resentful and rebellious.

Somewhere between the two extremes, it ought to be possible to find a sort of 'democratic' alternative, which allows children the freedom to grow up and to make their own decisions, including
35 mistakes, but which also offers them help and protection when they need it.

A. What do the following refer to?

1. "those" (line 10): _____
2. 'them' (line 12): _____
3. 'others' (line 20): other _____
4. 'the two extremes' (line 32): _____

B. Find words in the text which mean the same as the following.

1. do what you are told to do (paragraph 1): _____
2. adults (paragraph 2): _____
3. a feeling of approval and liking (paragraph 2): _____
4. state of disagreement (paragraph 3): _____

C. Mark the statements as True (T) or False (F).

- _____ 1. Children believe that their parents know the best.
- _____ 2. Outside influences affect children more and more as they grow up.
- _____ 3. Questioning the people and the values around us starts during adolescence.
- _____ 4. Teenagers begin to live according to their own values as soon as they determine them.
- _____ 5. Parents should have total control over their children's acts and decisions.

D.

1. How do children decide whether an experience is good or bad?
2. How do we try to resolve the conflict of values?
3. When do parents think that they have given their children too much freedom?

LONELINESS

Loneliness is a curious thing. Most of us can remember feeling most lonely when we were not in fact lonely at all, but when we were surrounded by people. Everyone has experienced, at some time, that utter sense of isolation that comes over you when you are at a party. It suddenly seems to you as if everybody knows everybody; everybody, that is, except you.

This feeling of loneliness, which can overcome you when you are in a crowd, is very difficult to get rid of. People living alone are advised to tackle their loneliness by joining a club or a society, by going out and meeting people. Does this really help?

There are no easy solutions. Your first day at work or at a new school is a typical situation in which you are likely to feel lonely. You feel lonely because you feel left out of things. You feel that everybody else is full of confidence and knows what to do, but you are helpless. The fact of the matter is that, in order to survive, we all put on a show of self-confidence to hide our uncertainties and doubts. Therefore, it is wrong to assume that you are alone.

The trouble is that you may not be able to hide the fact that you are lonely, and the miserable look on your face might put people off. Thus, trying to look reasonably cheerful is a good starting point to combat loneliness.

The next thing to avoid is finding yourself in a group where you are a stranger; that is, you are in the sort of group where all the people already know each other. There is a natural tendency for people to stick together. You will do yourself no good by trying to establish yourself in a group which has so far managed to do very well without you. Groups generally resent intrusion, not because they dislike you personally, but because they have already had to work quite hard to turn the group into a functioning unit. To include you means having to go over a lot of ground again, so that you can learn their 'language' and get involved in their conversation at their level. In fact, the surest way of getting to know others is to have an interest in common with them. There is no guarantee that you will then like each other, but at least part of your life will be filled with sharing experiences with others. It is much better than feeling alone. If all this seems to be a rather pessimistic view of life, you have to accept the fact that we are all actually alone and that loneliness is sometimes unavoidable.

CHOOSING A CAREER

One of the first things we try to find out about people is what their job is. It helps us to define their status. We can judge where they stand socially, and estimate how much they earn. However, it is more interesting to know how a man comes to choose his job than what he does.

The trouble is that we often choose a career for the wrong reasons. Take, for instance, those people who 'follow in father's footsteps', either entering the same trade or profession, or inheriting the family business. John decides to become a doctor because his father was a doctor. In fact, the word 'decides' is too strong; he probably never even thought about it. Funnily enough, some people make the opposite decision, namely that whatever else they might do, they will certainly not do what their father did. Our teachers are the first to persuade us to choose a specific career, probably because we are top students in that subject. We may also be persuaded by people whom we admire to select a career for which we are unsuited.

The attitude of our parents toward our choice of career is interesting. They are quite pleased when we announce our intention to study medicine, disappointed when we switch to languages and overjoyed when we finally start to study law. Clearly, they have a definite idea of the benefits different jobs will bring. Even though they appear to leave the choice entirely to their children, they know that their children will eventually respect their wishes.

Apart from these pressures from parents, teachers and other people, we may choose a career due to factors such as the attractiveness of the profession or the prospect of earning a lot of money in a short time. It ought to be easy to choose a career. We only have to do those things for which we have a natural talent. It is a pity, therefore, that we have to decide about our future at a stage in our lives when we can easily be influenced by factors which have little or nothing to do with the main issue.

A. Find words in the text which mean the same as the following.

1. calculate approximately (paragraph 1): _____
2. a particular kind of work (paragraph 2): _____
3. receiving money or property from someone who has died (paragraph 2): _____
4. the way someone thinks or feels about something (paragraph 3): _____

POWERS OF THE HUMAN BODY

The human body is made up mainly of bone, muscle and fat. Some 639 different muscles make up about 45 per cent of the body weight. Each of these muscles has four different and measurable qualities. It can produce force which can be "measured as strength of
5 muscle. It can also store energy which permits it to work for extended periods of time independent of circulation. In addition, a muscle can shorten or be stretched. The combination of these four qualities of muscle is referred to as muscular power.

10 If muscles are to function efficiently, they must be continually supplied with energy fuel. This is accomplished by blood, which carries the energy fuels from the lungs and digestive system to the muscles. The blood is forced through the blood vessels by the heart. The combined capacity to supply energy fuels to the working muscles is called organic power.

15 The capacity and efficiency with which your body can function depend on the degree of development of both your muscular and organic powers through regular exercise. However, the level to which you can develop these powers is influenced by such factors as the type of body you have, the food you eat, presence or absence
20 of disease, rest and sleep. You are physically fit only when you have developed your muscular and organic power.

Genetics and health determine the top limits to which your physical capacity can be developed. This is known as your
25 'potential physical capacity'. This potential capacity varies from individual to individual. Most of us, for example, could train for a lifetime and never come close to running a four-minute mile simply because we weren't built for it. The top level at which you can perform physically right now is called your 'acquired capacity' because it has been acquired or developed through physical activity
30 in your daily routines.

You can avoid wastage of energy by acquiring a level of physical capacity well above the level required to perform your normal daily tasks. This can be done by supplementing your daily
35 physical activity with a balanced exercise program performed regularly. Your capacity increases as you progressively increase the load on your muscular and organic systems.

MEDICINE IN THE SEVENTIES

The successes and failures of scientific medicine came sharply in contrast. New technology was available, but a more questioning attitude to it had emerged.

On 25 July 1978, a girl called Louise Brown became the world's first 'test-tube baby'. An egg from her mother's body had been successfully fertilized in a laboratory. For childless couples, the technique invoked new hope. Was it possible to manipulate human reproduction even more dramatically? Scientists developed 'cloning' in the seventies. It means reproducing several identical living things from a single original. Gardeners have practised it for centuries by taking cuttings from one plant to produce others. Scientists managed to clone frogs, and people suggested that it might be possible to clone humans, too. Ira Levin examined the idea in his novel *The Boys from Brazil*. In it, cells from Hitler's body are implanted in women around the world to create a whole race of Hitlers. This was a terrible fantasy. But despite its possibility, most scientists rejected the idea that a complex organism such as the human body could ever be cloned.

In 1979, Dr. Geoffrey Hounsfield won the Nobel Prize for physiology by developing the body scanner. This revolutionized X-ray techniques by scanning the body from all angles in three-dimensional sections. Drugs came under careful scrutiny. The morning sickness drug, Thalidomide, was found to produce deformed children, and the drug company was forced to pay millions of pounds in compensation. Doubts also grew about the contraceptive pill. Women over 35 who were heavy smokers were advised not to use it because of its dangerous side effects. In contrast, natural medicine became hugely popular, especially acupuncture, an ancient Chinese method of anaesthetizing patients by sticking pins into points in the nervous system.

A. Find words in the text which mean the same as the following.

1. raised; activated (paragraph 1): _____
2. did not accept (paragraph 1): _____
3. made great changes in (paragraph 2): _____
4. observation; examination (paragraph 2): _____

SHARKS: MAGNIFICENT AND MISUNDERSTOOD

Dr. E. Clark is a famous biologist and professor of zoology at the University of Maryland. In this article, she has described her research on sharks.

- 5 My early experiments with shark behaviour at Cape Haze surprised a great many scientists - including, I must admit, myself. The experiments showed how easily many types of sharks learned to distinguish between right and wrong targets, which is a skill they developed as quickly as laboratory white rats. 1
- 10 More recent studies of sharks' brains, sensory systems, and types of behaviour contradict popular misconceptions of sharks as stupid, unpredictable eating machines, with nothing more than primitive brains and a good sense of smell. In fact, sharks are as predictable as any animal - even one's wife or husband - if one takes time to study and get to know them. Those of us who have had an 2
- 15 opportunity to dive frequently with sharks do so, knowing that it is far safer to swim with these animals than to drive on an average city street or highway.
- 20 The last few years have produced exciting new knowledge about sharks. Barely a decade ago, there were only 250 accepted species; today, that number has climbed by a hundred. Sharks are a great deal more sophisticated than we once thought, and we now know that they have a higher sensitivity to electric fields than any animal ever studied. They have also been shown to orient to Earth's magnetic field. Sharks can match laboratory white rats in certain 3
- 25 learning tests, and they have a surprisingly long retention span. Thus, they are hardly the primitive and senseless creatures that man has mistaken them for.
- 30 For the most part, the normal shark diet consists of fishes, mollusks, and crustaceans. Few sharks actually hunt or feed on marine mammals. No shark normally feeds on man. Most shark attacks on humans are bite-and-release or slashing types of actions that suggest warnings rather than attempts to kill. We accept the fact that a dog bites a stranger if the latter invades its territory. Are the rare shark attacks on humans caused by the similar invasion of 4
- 35 what the shark considers its territory?
- When we consider the rarity of shark attacks among hundreds of millions of swimmers each year, we should ask ourselves a moral 5

question: Because we like to swim and dive in an environment
unnatural to our species , is it right for us to kill off tens of thousands
40 of harmless inhabitants of that environment to ensure our peace of
mind? We have invented many sports that are more hazardous than
going into the sea. When we kill ourselves at these, we blame no 5
one else and simply accept the risks. But when it comes to sharing
the sea, v/e insist that sharks take all the risks. With further research
45 we may one day be able to predict sharks' behaviour with great
accuracy. When that day comes, I feel certain we will recognize
that sharks present no threat to mankind.

A. What do the following refer to?

1. 'a skill' (line 7): _____
2. 'them' (line 14): _____
3. 'do so' (line 15): _____
4. 'our species' (line 39): _____
5. 'that environment' (line 40): _____
6. 'these' (line 42): _____

B. Find v/ords in the text which mean the opposite of the following.

1. primitive (paragraph 3): _____
2. safe (paragraph 5): _____

C. Find words in the text which mean the same as the following.

1. the period of time that something learnt is kept in memory (paragraph 3) : _____
2. private area (paragraph 4): _____

D. Mark the statements as True (T) or False (F).

- _____ 1. The experiments in Cape Haze showed that one can train sharks.
- _____ 2. Sharks are animals which have primitive brains with a good sense of smell.
- _____ 3. Today, there are more than 300 accepted species of sharks.
- _____ 4. Sharks are sensitive to electric fields but not to Earth's magnetic field.
- _____ 5. Sharks eat mainly fish, some mammals and man in order to feed themselves.
- _____ 6. Sharks rarely attack swimmers.
- _____ 7. The writer thinks that our peace of mind is more important than sharks' right to live.

ELECTRIC SHOCKS

Most of us fear an electric shock, yet we know little about what is safe and what is not when we handle electricity. For example, most of the time we are cautious about handling electrical devices which seem to be complicated in structure, but do not worry about turning off the electricity with a wet hand. Maybe you don't mind placing your radio or the hair drier on the wet surface in the bathroom.

Body fluids are not as good conductors as metals. Their resistance is much higher. For example, a current of 20 microamperes flowing directly through the heart can bring about death. On the other hand, a current of 100 to 200 microamperes through electrodes on the chest triggers the regular beating of the heart, after the heart has stopped. The reason for such a big difference in the effects of the two values is that the first current is sent directly to the heart and the second has to pass through the fluids of the body, which have a greater resistance. As you can see, in an electric shock, it is the current that matters, not the voltage.

One thing about the injuries associated with electric shocks is that, most of the time, they arise from involuntary body movements in response to the current. For example, the current may cause you to lose your balance and to fall off a ladder. Sometimes, the victim freezes with the current, maybe because some muscles are paralyzed for a moment, and he cannot let go of the thing he is holding. As he keeps holding the object, there will be more current sent through the body.

One other thing about electric shocks is the burns they cause. When the skin burns, a low resistance path is established for the current and now the current can cause more damage.

Some electrical appliances require earthing. With these appliances, if the insulation becomes frayed, the leakage is carried to the ground, without doing any harm. Most of the time, people use extension cables without the earthing or make incorrect connections. It is not safe to do so. Always use the proper extensions and connections.

One other mistake made by most people is to wind thick wires around fuses, to prevent the fuse from blowing frequently. The fuses are there for safety, to prevent the overloading of the current. If they do not blow, then the excess current may cause damage to the electrical appliances or even cause a fire.

Briefly, it is not safe to play with electricity. Never forget that your body resistance is lowered greatly when it is wet. Always be careful

40 with electricity, but never panic. If you see someone caught up in an electric shock, before you reach out to rescue him, go to the fuse box and shut off the circuit at the main inlet.

A. What do the following refer to?

1. 'they' (line 25): _____
2. 'if (line 39): _____

B. Mark the best choice.

1. Line 3, 'cautious' means _____.
a) ignorant b) curious c) worried d) careful
2. Line 11, 'triggers' means _____.
a) increases b) starts c) stops d) decreases
3. Line 21, 'freezes' means _____.
a) becomes very cold c) holds on tightly
b) is unable to move d) becomes electrified
4. Line 29, 'frayed' means _____.
a) worn out b) harmful c) renewed d) overloaded
5. We don't usually worry about turning off the electricity with a wet hand because we _____.
a) know that it is safe to do so
b) don't mind handling simple electrical devices
c) don't fear an electric shock
d) know a great deal about electricity
6. Injuries related to electric shocks are mostly due to the _____.
a) involuntary response of the body to the shock
b) type of appliance in which there was a leak
c) voltage of the electric shock
d) Both (b) and (c).
7. Lines 31-32, 'It is not safe to do so' means it is not safe to _____.
a) use extension cables without earthing
b) carry the leakage to the ground
c) make incorrect connections
d) Both (a) and (c).

1. Why does a low voltage electric current applied directly through the heart cause death while a higher one applied through electrodes on the chest does not?
2. Why does burnt skin enable the current to cause more damage?
3. What kind of misuse of electricity may cause fire?

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STRESS

Stress is considered to be a natural part of the contemporary world. Everybody is exposed to a certain amount of stress.

- Nonetheless, it should be made clear that stress doesn't occupy a greater place in our lives today than it did in the past. Although
5 cavemen didn't have to worry about the stock market or the atomic bomb, they worried about being eaten by a bear while they were 1 asleep or about dying of hunger - things that few people worry much about today. It's not that people suffer more stress today, it's just that they think they do. Everybody thinks that he or she is
10 under the greatest stress. The truth is that everybody actually is under stress because if we really managed to avoid stress completely, we would be dead.

- Stress is the response of the body to any demand. Stress is the state you are in, not the agent that produces it, which is called a
15 stressor. Cold and heat are stressors. However, having a highly developed central nervous system, man most frequently suffers from stress due to emotional stressors. The thing for the average 2 person to remember is that all the demands that you make - whether on your brain or on your liver or your muscles or your bones -
20 cause stress. For example, stress can occur under deep anesthesia, when your emotions are not engaged, or in animals that have no nervous system, or even in plants.

- There are two ways of telling when someone is under stress. One, not accessible to the public, is biochemical and neurological -
25 measuring blood pressure, hormone levels, the electric activity of 3 the brain and so on. Nevertheless, there are other indicators that anyone can judge. No two people react the same way, but the usual

30 responses are an increase in pulse rate and an increased tendency to sweat. You will also become more irritable and will sometimes 3 suffer insomnia, even long after the stressor agent is gone. You will usually become less capable of concentrating and you will have an increased desire to move about.

35 There are various causes of stress. They differ in various civilizations and historical time periods. At certain times, disease and hunger were the predominant causes. Another, now and then, is 4 warfare or the fear of war. At the moment, the most frequent causes of distress in man are psychological, e.g., lack of adaptation or not having a code of behaviour.

40 The secret code to coping with stress is not to avoid stress but 'to do your own thing'. It implies doing what you like to do and not what you are forced to do. It is really a matter of learning how to 5 live, how to behave in various situations, to decide: "Do I really want to take over my father's business or want to be a musician?" If you really want to be a musician, then be one.

A. Find words / phrases in the text which mean the same as the following.

1. modern (paragraph 1): _____
2. can be seen, noticed by (paragraph 3): _____
3. signs (paragraph 3): _____
4. main (paragraph 4): _____

B. Mark the best choice.

1. Line 14, 'if' refers to _____.
 - a) a stressor
 - b) any demand
 - c) the agent that produces stress
 - d) the state you are in
2. Line 24, 'One' refers to _____.
 - a) a way
 - b) stress
 - c) someone
 - d) blood pressure

C. Mark the statements as True (T) or False (F).

- _____ 1. There was as much stress in the past as there is today.
- _____ 2. A person can suffer from stress even when he is unconscious.

3. All symptoms of stress disappear as soon as the stressor agent disappears.
4. The causes of stress have never changed throughout history.

1. Why are emotional stressors the most frequent causes of stress in man?
2. What does the author mean by 'doing your own thing' in the fifth paragraph?

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BAD WATER

Few things are as insidious as bad water. It's dangerous for you and your children, but you usually can't tell if you have it. And if you do, you may not be able to find out where the problems are coming from. Water can carry some of our most serious diseases -
5 typhoid, dysentery, hepatitis - yet still look clear in the glass. We may do battle over how we get our water and develop it, but we fear for its quality.

This issue is being dealt with currently. There is a necessity to prevent pollution by passing laws which will maintain safe
10 drinking water. However, this is difficult because it has become increasingly apparent that the sources of pollution are not just institutions that can be controlled by specific laws. The burden of pollution belongs to all of us. 2

Water's nature itself is a part of these complications. This simple
15 structure of hydrogen and oxygen has even been called the universal solvent. It takes into solution a vast number of substances, that is, dissolves them, but those it cannot dissolve are simply carried along. 3

Human beings have put this characteristic to work in thousands
20 of ways. We wash with it; we flush with it; we mix **it with** chemicals to spray on our fields. We use it to make paint and plastic. We wash our workshop, garage and factory with it. But this
25 remarkable utility also means that it's very hard to put anything out of water's reach. Consequently, a lot of things we don't want in water get there anyway. If you pour poison on the ground, even in the most barren desert, water will pick it up molecule by molecule, 4

and because water is always going somewhere, it will take it away. 4

Technically, water pollution can be divided into two types: 5

30 point-source pollution (waste dumped by factories or sewage plants) and nonpoint-source pollution. In many ways, the second is the larger problem.

Nonpoint-source pollution is what happens when you spill oil on the garage floor, then wash it down. It happens when a soybean field is sprayed with pesticides and then it rains. It happens when 6

35 someone throws a dead battery into a valley, Water picks it all up and adds it to the system. Water is in serious jeopardy because we're not paying much attention to anything except pollution from a pipe.

40 All this shows that a change is coming - a fundamental change in the way we use and think about water. It's no use pointing fingers at industry. The only way to make progress is to have 7

everyone realize that nonpoint-source pollution is the major cause of water pollution and to convince them that it is no longer possible to ignore fresh water.

A. Find words in the text which mean the same as the following.

1. unpleasant, develops without being noticed (paragraph 1): _____
2. clear, obvious (paragraph 2): _____
3. infertile (paragraph 4): _____
4. danger (paragraph 6): _____
5. basic (paragraph 7): _____

B. Mark the best choice.

1. Line 8, 'This issue' refers to _____.
 - a) how we obtain our water
 - b) how we process our water
 - c) how we are uncertain about the quality of our water
 - d) how dirty water affects our children's health negatively
2. Lines 22-23, 'this remarkable utility' refers to _____.
 - a) the difficulty of keeping water clean
 - b) washing with water
 - c) flushing with water
 - d) the multiple uses of water

VIDEOS FOR KIDS: FUN *YES* - FACTS *YES* - VIOLENCE *NO*

"We are determined to provide parents with the opportunity to choose, quality family viewing instead of the crime and murder that dominates so much of TV aimed at 'children. Our new Children's Television department dynamically fulfills that commitment," says Gil
5 Grosvenor from National Geographic Society, whose first home-video series for children - *Really Wild Animals* - is geared for youngsters between the ages of five and ten.

The series is hosted by Spin, a cartoon globe-on-the-go who introduces young viewers to the ways Earth's inhabitants live, use
10 their environment, and care for one another. For instance, children see renowned scientist Jane Goodall studying the social structure of chimps and discover that these primates, just like humans, comfort their young.

Really Wild Animals begins with three video cassettes: *Swinging Safari*, *Wonders Down Under*, and *Deep Sea Dive*. Six more are
15 scheduled. The videos are entertaining and educational, and packed with animals - from African lions to Australia's spiny anteater.

Spin roams the world, speaking in the many voices of actor Dudley Moore. Spin presents a soap opera about colobus monkeys, a Western
20 about sea horses, and a segment on lifestyles of the weird and little: about a fish called a mudskipper, a marsupial called a quoll, and a mammal that flies - the fruit bat. Each video includes mini-documentaries about animals. Original music accompanies the stories.

Andrew Wilk, executive producer and vice president for Children's
25 Television, says: "We chose to start with a home-video series because we wanted involved viewers. When kids run VCRs themselves, they watch with concentration instead of zapping from channel to channel."

Children four and under will soon have their own home-video series in a format designed to appeal to that age. Called *Geo Kids*, the
30 series will premier in the fall of 1998.

"With this major new commitment, we hope to give children a running start toward a future where they can connect with the exciting, living world in all its variety and fullness."

MIDDLE EAST WATER: CRITICAL RESOURCE

By Priit J. Vesilind

Fresh water, life itself, has never come easy in the Middle East. The rainfall only comes in winter,- and drains quickly through the semiarid land, leaving the soil to bake and to thirst until next November. The region's accelerating population, expanding
5 agriculture, industrialization, and higher living standards demand more fresh water. Drought and pollution limit its availability. War and mismanagement squander it.

Scarcity is only one element of the crisis. Inefficiency is another, as is the reluctance of some water-poor nations to change priorities from
10 agriculture to less water-intensive enterprises. Some experts suggest that if nations would share both water technology and resources, they could satisfy the region's population, currently 159 million. But in this patchwork of ethnic and religious rivalries, water seldom stands alone as an issue. It is entangled in the politics that keep people from
15 trusting and seeking help from one another. Here, where water, like truth, is precious, each nation tends to find its own water and supply its own truth.

My journey starts in spring-time, high in the Anti-Taurus Mountains of southern Turkey. The generous snows of the Turkish
20 mountains have brought little wealth to the semiarid plains of the southeast. Without irrigation, they have yielded only one crop a year. But now Turkey has finally begun to harness its waters. I can see the Euphrates swelling with backup from the great Atatürk Dam. Soon its waters will rush through the world's two largest irrigation tunnels - 25
25 feet in diameter - to revitalize the Harran Plain 40 miles away. The Atatürk' will also generate nine billion kilowatt-hours of electricity a year. Eventually, 22 dams will impound the waters of the Euphrates and the Tigris, which also rises in eastern Turkey, all part of an ambitious and diverse development scheme called the Southeastern
30 Anatolia Project.

On the Harran, now lush with spring grass, the mood is optimistic. At a government experimental farm at Koruklu, agronomists test
35 patches of peaches, pecans, nectarines, pomegranates, and grapes as candidate crops for the coming waters. Local farmers attend irrigation classes with anticipation.

The massive 'Atatürk' sits 40 miles north of the city of Urfa. It is essentially an immense pile of rocks guarded by men with machine guns. With officials, I drive along its mile-long top. What looked like pebbles from a distance grow into car-size pieces of rock, each placed according to size, like a mosaic, by a machine with a monstrous arm. The blue-green Euphrates thunders below the dam with power that seems closer to electricity than water.

When nations share the same river, the upstream nation is under no legally binding obligation to provide water downstream. But the downstream nation can claim historical rights of use and press for fair treatment. In 1989, President Turgut Özal alarmed Syria and Iraq by announcing that Turkey would hold back the flow of the Euphrates for a month to start filling the 'Atatürk'. To offset the loss, Turkey increased the flow for two months before the cutback, but even this did not prevent an outburst of criticism.

If seen as a commodity, water can be packaged, bought and sold, and may soon move between nations like wheat. But political mistrust hampers many promising schemes. In 1987, Turkey proposed a "peace pipeline" of water from two Turkish rivers - the Ceyhan and the Seyhan - that flow south into the Mediterranean. The dual pipelines would deliver potable water to millions in Syria, Jordan, Saudi Arabia, and other Arab Gulf states. Nevertheless, few nations were receptive, and the concept sits in limbo.

"In this region," Turkish Foreign Ministry official Burhan Ant told me in Ankara, "interdependence is understood as the opposite of independence. Every country here seeks a kind of self-sufficiency in every field because they don't trust the others."

A. Mark the statements as True (T) or False (F).

- _____ 1. November is the month when the rainfall starts in the Middle East.
- _____ 2. The soil in the southeast is rich due to the snows of the Turkish mountains.
- _____ 3. Peaches, pecans, nectarines, pomegranates and grapes are grown by the local farmers in Koruklu.
- _____ 4. There is no international law which states that a country which shares the same river with others has to provide water for them.

B. Mark the best choice.

- 1. Line 21, 'they' refers to _____.
a) people b) mountains c) snows d) plains
- 2. Line 49, 'this' refers to Turkey's _____.
a) holding back the water flow of the Euphrates
b) increasing the flow for two months before the cutback
c) announcing that there would be a hold-back of water flow
d) filling the Atatürk Dam for future use

THE BERMUDA TRIANGLE (1)

Around 1975, a number of books were written about strange things which occurred in the Bermuda Triangle, a part of the Atlantic Ocean off the southeast coast of the U.S. They told the stories of planes and ships that disappeared for no understandable reason and were never found again. They told about ships which were found undamaged but with no one on them. According to these books, more than 1,000 people disappeared in the Triangle from 1945 to 1975.

According to some writers, there were no natural explanations for many of the disappearances, so they suggested other explanations. For example, according to one writer, some strange and terrible power exists in the Triangle. According to another writer, people from space are living at the bottom of the Atlantic, and sometimes they need human sailors and airmen for their research. These ideas were not scientific, but they were good advertisements, which made the books about the Bermuda Triangle immediate successes.

However, the books give little evidence to support their unusual ideas. In addition, these books ignore at least three important facts that suggest natural reasons for many of the occurrences. First, messages from some of the ships and aircraft which later disappeared give us evidence of problems with navigational instruments. Similar stories are told by officers who were on duty on planes and ships which finally managed to come through the Triangle without disaster. Second, the weather in this part of the Atlantic Ocean is very unpredictable. Dangerous storms that can cause problems even for experienced pilots and sailors can begin suddenly and without warning. Finally, the Bermuda Triangle is very large, and many people, both experienced and inexperienced, sail and fly through it. Perhaps the figure of 1,000 deaths in thirty years shocks some people, but, in fact, the figure is not unusual for an area of ocean that is so large and that is crossed by so many ships.

The evidence which exists, therefore, supports one conclusion about the Bermuda Triangle: we do not need stories about people from space or strange unnatural powers to explain the disappearances.

A. What do the following refer to?

1. 'them' (line 6): _____
2. 'they' (line 9): _____
3. 'they' (line 12): _____
4. 'if' (line 27): _____

B. Find words in the text which mean the same as the following.

1. took place (paragraph 1): _____
2. something that supports a belief (paragraph 3): _____

C. Mark the statements as True (T) or False (F).

- _____ 1. All the books about the Bermuda Triangle give natural explanations for the things that happen there.
- _____ 2. The books about the Bermuda Triangle sold very well.
- _____ 3. The writer of this passage is shocked by the large number of deaths in the Bermuda Triangle between 1945 and 1975.
- _____ 4. None of the planes or ships which disappeared reported any problems before their disappearance.

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THE BERMUDA TRIANGLE (2)

- The Bermuda Triangle, which is sometimes called 'The Graveyard of the Atlantic', is one of the greatest mysteries of the world. This is an area of the western Atlantic between Bermuda and Florida, almost triangular in shape, where at least a hundred ships and planes and over
- 5 a thousand people have disappeared since 1945. No wreckage has ever been discovered in the area; that is, no bodies, life boats, or any other evidence of disaster have been found. It is as if these planes, ships and people had never existed. In some cases, a normal radio message was sent from the airplane reporting that everything was fine. Then, a few
- 10 minutes later, the radio seemed to break down. In others, a weak S.O.S. message was received but the airplane disappeared before ships or other airplanes could be sent to help. Sometimes in perfect weather, there were strange references to fog and loss of direction. In the extraordinary case of five U.S. navy planes which disappeared on a
- 15 regular flight from Florida, the rescue plane sent to find them also disappeared. A strange white light is a characteristic of the sea in this

area. It is interesting to know that not only was this light observed by the astronauts on their way to space, but it was also seen by Columbus over four hundred years ago. It is not yet known if this light has any connection with the strange disappearances.

Many theories have been suggested to explain all these mysterious happenings in the Bermuda Triangle. Some people believe that they are caused by activity from outer space. Others think that they are caused by some undiscovered source of energy or by some dimension of time or space which is not known by man. There is no answer yet, but scientists are working hard to find one.

A. What do the following refer to?

1. 'them' (line 15): _____
2. 'if' (line 18): _____
3. 'they' (line 22): _____
4. 'Others' (line 23): Other _____
5. 'one' (line 26): _____

B. Mark the best choice.

1. The Bermuda Triangle is located _____.
a) in Bermuda c) between Bermuda and Florida
b) in a triangle d) near the Graveyard of the Atlantic
2. The strangest fact about the happenings in the Bermuda Triangle is _____.
a) that bodies have been found c) that ships and planes have never existed
b) the lack of evidence of disaster d) the appearance of wreckage in the area
3. Before the airplanes disappeared, _____.
a) odd reports about the weather were sometimes received
b) a ship was sent to look for them
c) S.O.S. messages were never sent
d) the pilots always reported that there were no problems
4. The strange white light in the area was _____.
a) the cause of the disappearances c) unknown four centuries ago
b) noticed by the astronauts d) a theory suggested by scientists
5. The disappearances _____.
a) are caused by people from outer space
b) take place in the unknown time dimension
c) are due to a recently discovered energy source
d) haven't been explained by scientists yet

ATTITUDES TOWARDS MONEY

Americans these days are very concerned with the economy. It seems more people are having to learn to spend less and to spend wisely due to the hard times we are experiencing. However, people's attitudes towards money differ.

- 5 The misers accumulate money in banks if their income is large, or in the house stuffed in mattresses or under the living room rug if they are low income people. They seem almost obsessed with the idea of saving. The misers deprive themselves of many things and most live miserably in order to hoard their wealth. My 90-year-old neighbor,
- 10 having gained the sympathy of the neighbors, often collected groceries and money from them. She dressed shabbily and lived in a deteriorated house . After her death, it was discovered that this old woman had left thousands of dollars to the church and other organizations. She left nothing to her family.
- 15 The spenders are people who cannot seem to hold on to their money. They have a tendency to spend too much on too many unnecessary things. They are often too generous, buying elaborate gifts for friends and family. Credit cards in some spenders' hands are often dangerous weapons. They become addicted to using them only
- 20 to regret it later when the bills come in and they are unable to pay. Other spenders like to gamble and this can also be destructive if it turns into a vice. Many spenders do not necessarily throw their money away but give it to charities for good causes, simply because they enjoy giving. My Uncle Mario is a big spender. He makes over
- 25 \$25,000 a year, but he never has any money in his savings account because he spends his entire paycheck each week on necessities and luxuries. Last week he spent \$500 on a new moped, not because he needed one, but because he thought it would be fun to own one. As a result of his spending, every year in April he has to borrow money to
- 30 pay his taxes because he has spent it all.

A. Mark the best choice.

1. A 'deteriorated house' (line 12)_____.
- a) contains many unnecessary things
 - b) is decorated badly
 - c) is in a bad condition
 - d) is a place where old people live

OVER-AMPLIFICATION

Hearing specialists used to worry about loud noise as a cause of deafness only in industrial and military situations. They knew that eight hours of daily exposure, year in and year out, to the noise of the proverbial boiler factory would eventually result in permanent, or
5 irreversible, hearing loss. People who used drills were particularly susceptible. Then they learned that the same thing happened to aviators. And after jets came into existence, the hazard applied to ground crews at airports and flight-deck personnel aboard aircraft carriers - hence came the introduction of insulated, noise-absorbing
10 plastic earmuffs.

In discotheques and rock 'n' roll joints, the trouble is not so much in the instruments themselves, or the small area. The blame goes to the electronic amplifiers. An old-fashioned military band, playing a march in Central Park, generated as much sound. However, the sound was
15 not amplified, but was dissipated in the open air. A trombonist sitting in front of a tuba player might be a bit deaf for an hour or so after a concert; then his hearing returned to normal. A microphone hooked up to a public address system intensified the sound but did not appreciably increase the hearing hazard. What did was multiple mikes
20 and speakers, and the installation of internal mikes in such instruments as guitars and bousoukis.

The man who had the problem closest to home, and studied it there, was George T. Singleton, an ear, nose and throat man at the University of Florida. He noticed that, when he picked up his teenage
25 daughter Marsha after a dance, she couldn't hear what he said in the car on the way home. Singleton recruited a research team and tested the hearing of ten fourteen-year-old ninth-graders an hour before a dance. Then, the investigators went to the dance hall, and found the average sound intensity to be very high in the middle of the dance
30 floor. Directly in front of the band, it peaked to extremely high levels. The test crew had to move forty feet outside the building before the level dropped to a safe, but still uncomfortable, level.

After the dance, the kids' hearing was tested again. Despite the youthful resiliency of their inner ears, all had suffered at least
35 temporary hearing impairment. The greatest damage was in the high-frequency speech range, involving consonantal sounds, similar to the loss felt by oldsters who complain that "everybody mumbles nowadays".

Why do the youngsters immerse themselves in noise that is so

40 uncomfortable to their elders? A Florida teenager explained: "The sounds embalm you. They numb you like tranquilizers. You don't want to hear others talk. You don't want to talk. You don't know what to say to each other, anyway." So, why listen? And, eventually, how?

A. Mark the best choice.

1. Line 6, They' refers to _____.
a) people who used drills c) workers in the boiler factory
b) people exposed to loud noise d) hearing specialists
2. To be 'dissipated*' (line 15) means to _____.
a) be made inaudible c) be tolerated
b) become less or disappear d) become safer
3. Line 20, 'internal mikes' means _____.
a) a group of microphones used to amplify the sound
b) speakers to which musical instruments are connected
c) the strings of instruments like guitars and bousoukis
d) microphones inside musical instruments
4. If something 'numbs' (line 41) you, _____.
a) it makes you unable to speak
b) you can't decide how to behave
c) you don't feel any physical sensation
d) it makes you unable to hear
5. _____ led to the introduction of insulated, noise-absorbing plastic earmuffs.
a) The hazards of airports c) The introduction of jet airplanes
b) The noise of aviators d) Aircraft carriers
6. Old-fashioned military bands were different from discotheques and rock 'n' roll joints in that _____.
a) they only played marches in big parks
b) the sound the instruments produced was not amplified
c) they had fewer instruments
d) they didn't generate a lot of sound

THE CYCLAMATE CONTROVERSY

At the center of the cyclamate discussion is Dr. Jacqueline Verrett, a Food and Drug Administration research scientist for many years who, since 1966, has been testing cyclamate on chicken embryos. Of a total of 4,000 embryos injected, 15% have shown deformities: feet attached directly to the hip, toes fused together, 'flipper' legs, malformed spines and missing pelvises. An earlier FDA test had shown chromosome breakage in rats that were injected with cyclohexylamine, a metabolic product of cyclamate. Concluded Dr. Verrett, "I don't recommend cyclamate for chicks, and I don't recommend it for people." After discussing the results of her work on a television program, she drew an immediate rebuttal from the FDA Commissioner Dr. Herbert Ley. "Cyclamates are safe within the present state of knowledge and scientific opinion available to me," he said.

There have been other warnings about the widely used sweetener. Last November, the FDA was advised by the National Academy of Sciences, National Research Council, that use of cyclamates should be restricted. As a result, the agency last April began considering new labeling requirements for artificially sweetened foods and beverages. The labels would indicate cyclamate content in milligrams and would recommend a maximum daily intake of 3,500 mg for adults and 1,200 for children. But the FDA has not yet given any indication about when, or if, it will establish the requirements.

The ban on cyclamates, ordered by the Health Education and Welfare Secretary Robert Finch last week, might hit millions of weight-watchers in the waistline, but it is a real disappointment to the rich diet-food industry. In the 20 years since cyclamates were discovered, sales of products containing the non-nutritive sweeteners have risen to \$1 billion annually.

Worst hit will be the processors of foods containing the sweetener. Most of the cyclamate supply now goes into diet drinks, which have gained at least a 15% share of the market for soft drinks. There is some question whether diet drinkers will switch back to sugar-sweetened drinks or just give it all up in favor of water. Cyclamates are also used in puddings, gelatins, salad dressing, jams and jellies, ice cream and practically all diet foods. The producers of 'cured' bacon commonly use cyclamates, which are cheaper than sugar. Cyclamates even go into the making of children's flavored vitamins, pickles and dog food.

Diet drinks containing cyclamates must be removed from shelves by January 1st. The announcement took some producers unawares. Instead of trying to fight the ban, Coca-Cola officials say that they are experimenting with other formulae for their diet drinks, and will probably switch to some other low-calorie sweetener. PepsiCo, which was obviously not caught

napping, immediately announced that it will begin marketing within a few weeks cyclamate-free Diet Pepsi-Cola 'with a touch of real sugar'.

A.

1. What is cyclamate?
2. What do flipper legs or missing pelvises exemplify?
3. Why did the FDA begin to consider new labeling requirements for artificially sweetened foods and beverages?
4. Who will the ban on cyclamates affect most?
5. In which kind of food is the most cyclamate used?
6. What may diet-drinkers do after the ban on cyclamates is put into practice?
7. When is the ban on cyclamates officially starting?

B. Mark the statements as True (T), False (F) or No Information (NI).

- _____ 1. Dr. Herbert Ley doesn't object to the use of cyclamates.
- _____ 2. Children can tolerate a lower amount of cyclamates than adults.
- _____ 3. Cyclamate is not nutritive.
- _____ 4. Producers invest much more money in diet foods than in conventional ones.
- _____ 5. Cyclamates cost producers more money than real sugar.
- _____ 6. There has been a growing interest in diet foods in the last twenty years.
- _____ 7. Cyclamates are also used in dog food.
- _____ 8. There are labels on containers indicating the cyclamate content of the product.
- _____ 9. PepsiCo tried to fight the ban on cyclamates but couldn't get the authorities to change their minds.

A GOOD LIFE

The people of the Caucasus Mountains of southern Russia have long been famous for attaining extremely old ages. Arab and Persian chronicles from centuries ago noted the existence of these longevous peoples. The latest Soviet census reports that 70 per cent of all people
5 reaching 110 years or more live in the Caucasus region. An anthropologist described meeting a woman of 139 years. This does not seem old at all, however, compared to her first cousin, who reached 146 and her great-grandfather, who lived to be 160. When we consider
10 that most people in the United States expect to live only half that long and that people in some parts of the developing world will live only one third that long, we cannot help wondering what the causes of such long life are. Is it exercise, diet, physical environment, cultural
15 environment, or what? Anthropologists have concluded that exercise and diet are not as important as a steady way of life with certain cultural expectations and roles.

The people in most of the region of the Caucasus Mountains have a slow, regular, rhythmic life style. There is continuity in all of the physical aspects of their life. First, most of the Caucasians live in
20 mountain villages in a pastoral setting. They work as farmers, herders, or gardeners. Their lives are regulated by the rising of the sun, the steady rhythm of the growing cycle, the harvest, and the setting sun. Most of the longevous people have always held the same jobs. They learned their jobs young, and have continued in the same job until
25 they are well past 100, some working until they are 120 or 130. The outdoor work and the mountainous terrain provide a good deal of exercise. Anthropologists feel that while exercise contributes to longevity, the rhythmic lifestyle is more important. There is also continuity in diet. The people of the Caucasus very much enjoy their
30 traditional food and have no inclination to change it. They have eaten the same lean meat, grains, fruits, and vegetables from childhood to old age. Traditionally, Caucasians are lean people who do not overeat. Like exercise, anthropologists conclude that it is not the diet itself that is the secret for long life, although it does contribute. The real secret is the continuity in diet from birth to death. The consistent, unchanged
35 diet and regular dietary rhythm allow the body and its digestive system to become entirely adjusted. Therefore, physiological stress on the digestive system is at a minimum. The overall evenness of pace in the Caucasian way of life makes for a feeling of well-being and encourages longevity.

40 Another important cause of longevity among the Caucasians is a
stable cultural environment with certain expectations. First, the goals
of the Caucasians do not overreach the possibilities of attainment.
Unlike many Americans who want to be chairmen of the boards or
presidents of the companies, goals which they can never attain, the
45 goals of the Caucasians tend to be realistic and attainable within their
cultural milieu. Their goals are more people-oriented. They
concentrate on being hospitable and generous towards others, goals
which are not only attainable, but also contribute to the overall
well-being of the social group. Because the goals of the Caucasians
50 are realistic and attainable, emotional tensions are reduced. This
contributes to long life. Second, the normal expectation within the
region is for long life. Individuals expect to live far beyond the age of
100. On the other hand, the cultural expectation of people in the
United States is for a maximum life span of about 80 years. These
55 cultural expectations become self-fulfilling prophecies. Further, the
Caucasians do not expect the old people to sit idly by , but to participate
actively in all phases of life. A stable environment with realistic goals
and expectations is a second cause for longevity among the
Caucasians.

60 Finally, longevity is also encouraged by the role of old people in
the family and in the community. The Caucasians have large extended
families of maybe 300 people or more. This provides a large network
of people with mutual rights and obligations. The aged are respected
as heads of the family. They make decisions about money, marriages,
65 land sales, and other matters. They are also expected to be affectionate
toward their grand-children. The old people are also respected in the
community. They continue to vote, hold office and so make decisions
which will affect the future of the entire community. Because of their
important place in the family and in the community, the aged retain a
70 feeling of individual self-worth and importance. Retaining a positive
self image reduces physical and mental problems, thus encouraging a
longer life.

A. What do the following refer to?

1. 'these longevous peoples' (lines 3-4): _____
2. This* (line 50): _____
3. This' (line 62): _____

B. Mark the best choice.

1. Line 29, 'inclination' has the same meaning as _____.
a) resistance b) determination c) ambition d) wish

3. What is the role of the old in the Caucasian family?

4. Why do old Caucasians have a positive self-image?

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"TO SLEEP, PERCHANCE TO DREAM..."

Sleep is broken into five distinct parts - Stages 1 through 4, plus REM, an acronym for rapid eye movement. REM and non-REM sleep are quite different, as different from each other as each is from being awake. Much remains unknown about each of the five sleep stages. Most dreaming occurs during REM sleep, a period when the eyeballs move rapidly beneath the closed lids. And whether they remember or not, all adults dream, usually four to six times a night.

Three types of mood are strongly related to some specific stage of sleep. Our friendly, aggressive, and sleepy feelings all relate to Stage 2 sleep, which accounts for most of our total sleep hours. Our friendly and sleepy feelings, but not our aggressive feelings, are affected as well by Stages 3 and 4, and by how long it takes us to fall asleep.

This means that if you get less sleep than normal - and people vary a great deal in how much sleep they normally require - you awake more friendly, more aggressive, but less sleepy. Researchers knew from their earlier work that sleep determines if people feel happier. Yet, when they studied the various sleep stages, they found no correlation between sleep physiology and the unhappy mood. They were puzzled by this. Clearly sleep made a difference, but that difference didn't relate to how much time one spent in each of the various sleep stages.

The researchers decided the key to whether we feel happy or unhappy after sleep must lie in sleep's psychological component - our dreams. So, they began studying dream content - what dreamers dreamed and who appeared in their dreams - to see how it affected mood.

These findings have emerged from eight years of sleep and dream research at the Veterans Administration Hospital in Cincinnati, Ohio:

- While sleep affects how sleepy, friendly, aggressive, and unhappy we feel after awakening, feelings of happiness or unhappiness depend most strongly on our dreams.
- Each of us has a special dream character, a type of person whose appearance in our dreams makes us feel happier when we awake.

- What we dream at night isn't as important to how we feel in the morning as the number of people who populate our dreams. The more people we see, the better we feel.
- Our sleep influences our mood. Our mood, in turn, affects our performance. And throughout the day, our levels of mood and performance remain closely linked.

Mark the statements as True (T), False (F) or No Information (NI).

- _____ 1. Rapid eye movements during sleep usually indicate that you are dreaming.
- _____ 2. The amount of sleep required is the same for everybody.
- _____ 3. People have difficulty in remembering their dreams if it has taken them a long time to fall asleep.
- _____ 4. If few people appear in your dream, you are likely to feel bad when you wake up.
- _____ 5. A person can perform well even if s/he is not in a good mood.
- _____ 6. More time is spent in Stage 2 sleep than in other stages.
- _____ 7. People wake up after Stage 4 sleep.

100

ELEMENTS

There are over 100 elements in nature. Each element is composed of an innumerable group of atoms which are identical with one another and different from the atoms that make up the other elements. Normally they are found in pairs or in combinations with other kinds of atoms. We call these arrangements of atoms 'molecules'.

Why do some atoms combine while others do not? What determines the manner in which atoms combine? The answers have to do with the electrons that circle the nucleus of the atom. As we know, an atom is composed of three kinds of particles: protons and neutrons, which are found in a very small region at the center of the atom, and electrons, which orbit the nucleus. The number of electrons in an atom is the same as the number of protons, and this number determines the chemical properties of the element. The number of neutrons in the atoms of a given element is not constant, though it is usually slightly greater than the number of protons. The orbits of the electrons about the nucleus are something like the orbits of the planets in our solar system about the sun, except that

20 each atomic orbital can contain only a certain maximum number of
 electrons. For example, the first atomic orbital, corresponding to
 the planet Mercury, can contain as many as two electrons, no more;
 the second atomic orbital, corresponding to the planet Venus, can
 contain as many as eight electrons, no more; and so on. The inner
 25 orbitals of atoms are the first to take electrons, and because of
 certain factors that depend upon energy, atoms like to have their
 last, outer orbital full. The inert gases - Helium, Neon, Argon,
 Krypton, Xenon, and Radon - are elements whose atoms have full
 electron orbitals. Consequently, these elements do not combine
 with other elements; they are chemically inactive, inert. The atoms
 30 of all other elements tend to combine with other atoms so as to fill
 up their electron orbitals.

Hydrogen atoms always have a single electron and a single
 proton, so their electron shell (orbital) is one electron short of being
 full. In the gaseous state, two hydrogen atoms are combined to
 35 form a single molecule (H_2). Each electron circling about both
 nuclei makes it appear as if there were only one electronic orbital.
 Oxygen atoms have eight electrons, two of which fill the first
 orbital; the remaining six are contained in the second orbital,
 leaving the second orbital two short of the preferred number eight.
 40 Often in nature we find a molecule where two hydrogen atoms
 have given their electrons to a single oxygen atom, which fills the
 second orbital of the oxygen atom. This arrangement of oxygen and
 hydrogen is very stable. This molecule is called 'water'.

The carbon atom has four of its six electrons in its outer orbital.
 45 Depending upon how you look at it, it has either four too few or
 four too many electrons in its outer orbital. It is willing either to
 borrow or to lend four electrons. When carbon combines with
 oxygen, the carbon atom gives two electrons to each of two oxygen
 atoms; the result is the gas carbon dioxide (CO_2), which is quite
 50 common in nature.

Chemical reactions are simply the arrangements and
 rearrangements atoms and molecules go through to have full
 5 electron orbitals. Any destruction or creation of molecules is a
 chemical reaction.

1. Use your own words for expressing the general idea of the first paragraph.
2. Use your own words for expressing the general idea of the second paragraph.

BURGER TO GO – HOLD THE PLASTIC

Polystyrene foam is one of the great success stories of modern industry. Light, shock-resistant, insulating and cheap to make, it shows up everywhere: in disposable coffee cups, in boxes that hold fast-food hamburgers, as packing 'peanuts' for safe shipping. But the stuff has a serious downside as well. Polystyrene is bulky, taking up space in landfills; as a plastic, it takes decades to decompose; its manufacture causes the release of hazardous chemicals; and the market for recycling it is hopelessly limited. Environmentalists have argued for years that the foam should simply be banned.

They now have an unlikely ally: McDonald's. America's largest fast-food chain and frequent target of environmental protests announced last week that it would begin phasing out foam packaging within 60 days at its 8,500 U.S. restaurants. The move came as a surprise. The company has long said the containers were not necessarily a problem and had planned a \$100 million campaign to recycle them. But ecology-minded customers were increasingly unhappy with the packages. As a result, McDonald's is making the phaseout part of a broad pro-environment initiative that the company is developing in partnership with the Washington-based Environmental Defense Fund.

McDonald's will probably replace its foam hamburger boxes with material similar to the thin paper used to wrap its smallest sandwiches. That is not a perfect solution either. The paper is not yet recyclable, and while it does break down in landfills, its production requires cutting down trees. But it takes up 90% less space than foam when discarded, and McDonald's is testing a paper-recycling technique in some of its California stores. If it can find alternatives, the chain may also replace its polystyrene plates and coffee cups.

One possible substitute for some uses of polystyrene comes straight from nature. To replace the plastic-foam pellets that are used to protect delicate merchandise during shipping, at least two companies in California are trying to market a biodegradable, in fact, edible, alternative: popcorn. The drawbacks are that it is more expensive to produce than polystyrene pellets and tends to attract rodents and insects. Nonetheless, a handful of mail-order companies and other shippers in the U.S., Canada and Europe have begun packing with popcorn (butter and salt not included). Such small innovations, along with dramatic shifts by companies like McDonald's, may someday eliminate a major insult to the environment.

ANTIQUES REPAIRS

Some time ago, I discovered that one of the chairs in my front hall had a broken leg. I didn't foresee any great difficulty in getting it mended, as there are a whole lot of antique shops in Pimlico Road, which is three minutes' walk from my flat. So, I set forth one morning
 5 carrying the chair with me. I went into the first shop confidently expecting a friendly reception, with a kindly man saying: "What a charming chair. Yes, that's quite a simple job. When would you want it back?"

I was quite wrong. The man I approached wouldn't even look at it. I
 10 wasn't too concerned; after all, it was only the first try and there are many more shops on both sides of the road.

The reaction at the second shop, though slightly politer, was just the same, and at the third and the fourth, so I decided that my approach must be wrong.

15 I entered the fifth shop with some confidence because I had concocted a plan. I placed the chair gently on the floor so as not to disturb the damaged leg and said "Would you like to buy a chair?" The rather fierce proprietor looked it over carefully and said, "Yes, not a bad little chair. How much do you want for it?" "£20," I said. "OK,"
 20 he said, "I'll give you £20." "It's got a slightly broken leg," I said. "Yes, I saw that; it's nothing. Don't worry about it."

Everything was going to plan and I was getting excited. "What will you do with it?" I asked. "Oh, it will be very saleable once the repair is done. I like the bit of old green velvet on the top. I shall leave that -
 25 yes, very saleable." "I'll buy it," I said. "What d'ye mean? You've just sold it to me," he said. "Yes I know, but I've changed my mind. As a matter of fact, it is just what I'm looking for - I've got its pair at home. I'll give you 27 quid for it." "You must be crazy," he said. Then suddenly the penny dropped and he smiled and said, "I know what you
 30 want. You want me to mend your chair, don't you?" "You're plumb right," I said.

"And what would you have done if I had walked in and said, 'Would you mend this chair for me?' Would you have repaired it?"
 "No, I wouldn't have done it," he said. "We don't do repairs - not
 35 enough money in it and too much of a nuisance . However, I'll mend this chair for you - shall we say a fiver?" He was a very nice man and thought the whole episode rather funny.

ALEXANDER THE GREAT

In 334 B.C., with an army of 35,000 men, Alexander crossed into Asia Minor. In addition to soldiers, the former student of Aristotle brought along scientists to study plant and animal life and to chart the terrain. After capturing the coast of Asia Minor, Alexander marched into Syria and defeated the Persian army at the battle of Issus. Rather than pursuing the fleeing Persian king, Darius III, Alexander stayed with his master plan, which included the capture of coastal ports in order to crush the Persian navy. He captured Tyre, thought to be an impregnable city, and advanced into Egypt. Grateful to Alexander for having liberated them from Persian rule, the Egyptians made him pharaoh. Alexander appointed officials to administer the country and founded a new city, Alexandria.

Having destroyed or captured the Persian fleet, Alexander moved into Mesopotamia in pursuit of Darius in 331 B.C. The Macedonians defeated the numerically superior Persians at Gaugamela, just east of the Tigris River, but Darius escaped. After stopovers at Babylon and at Persepolis, which he burned in revenge for Xerxes' destruction of Athens more than 150 years earlier, Alexander resumed the chase. When he finally caught up with Darius, the Persian king was already dead, killed by Persian conspirators.

Alexander relentlessly pushed deeper into Asia, crossing from Afghanistan into north India, where he defeated the king of Pontus in a costly battle. When Alexander announced plans to push deeper into India, his troops, exhausted and far from home in a strange land, resisted. Yielding to their wishes, Alexander returned to Babylon in 324 B.C. In these campaigns, Alexander proved himself to be a superb strategist and leader of men. Winning every battle, Alexander's army had carved an empire that stretched from Greece to India. Future conquerors, including Caesar and Napoleon, would read of Alexander's career with fascination and longing.

C. Mark the statements as True (T) or False (F).

- _____ 1. Alexander brought Aristotle to Asia Minor.
- _____ 2. Alexander's master plan was to destroy the Persian army first.
- _____ 3. The Persians had invaded Egypt before Alexander did.
- _____ 4. Alexandria's name was changed by Alexander.
- _____ 5. The Persian army had more soldiers than Alexander's army.
- _____ 6. Alexander didn't forgive even the oldest enemies of his country.

7. The Macedonians finally captured Darius and killed him.
8. The whole of India was invaded by Alexander's army.
9. It took only ten years for Alexander to expand his empire from Greece to India.
10. Caesar and Napoleon admired Alexander's achievements.

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THE MIDDLE AGES IN EUROPE

In the late Middle Ages, Latin Christendom was afflicted with severe economic problems. The earlier increases in agricultural production did not continue. Limited use of fertilizers and limited knowledge of conservation exhausted the topsoil. As more grazing lands were converted to the cultivation of cereals, animal husbandry decreased, causing a serious shortage of manure needed for arable land. Intermittent bouts of prolonged heavy rains and frost also hampered agriculture. From 1301 to 1314, there was a general shortage of food, and from 1315 to 1317, famine struck Europe. Throughout the century, starvation and malnutrition were widespread.

Other economic problems abounded. A silver shortage, caused by technical problems in sinking deeper shafts in the mines, led to the debasement of coins and spiraling inflation, which hurt the feudal nobility in particular. Prices for manufactured luxury goods, which the nobility craved, rose rapidly. At the same time, the dues that the nobility collected from peasants diminished. To replace their revenues, lords and knights turned to plunder and warfare.

Compounding the economic crisis was the Black Death, or bubonic plague. This disease was carried by the fleas on brown rats, and probably first struck Mongolia in 1331-32. From there it crossed into Russia. Carried back from Black Sea ports, the plague reached Sicily in 1347. Spreading swiftly throughout much of Europe, the plague attacked an already declining and undernourished population. The first crisis lasted until 1351, and other serious outbreaks occurred in later decades. The crowded cities and towns had the highest mortalities. Perhaps twenty million people - about one-quarter to one-third of the European population - perished in the worst human disaster in recorded history.

Deprived of many of their intellectual and spiritual leaders, the panic-stricken masses drifted into immorality and hysteria. Frenzied forms of religious life and superstitious practices became popular. Flagellants marched from region to region beating each other with sticks and whips in a

desperate effort to please God, who they believed had cursed them with the plague. In addition to flagellation and superstition, black magic, witchcraft, and sexual immorality found eager supporters. Dress became increasingly ostentatious and bizarre. Art forms concentrated on morbid scenes of decaying flesh, dances of death, and the torments of Hell. Sometimes this hysteria was directed against the Jews, who were accused of causing the plague by poisoning the wells. Terrible massacres of Jews occurred despite the pleas of the papacy.

A. Write what the dates below indicate.

1. 1301-1314: _____

2. 1315-1317: _____

3. 1331-1332: _____

4. 1347: _____

5. 1351: _____

B. Find the following information.

1. What 'flagellants' are: _____
2. The number of people who died due to the plague: _____
3. Four examples of practices to illustrate the hysteria that occurred after the plague:
 - a) _____
 - b)** _____
 - c) _____
 - d) _____

C.

1. Why was the population in Europe 'already declining and undernourished' when the plague struck them? (Give two reasons.)
 - a) _____
 - b) _____
2. Why did the cities and towns have the highest mortality rates from the plague?
3. Why did the panic stricken masses drift into immorality and hysteria?
4. Why do you think dress and art forms became increasingly exaggerated and morbid?
5. Were the Jews really responsible for the plague? Explain.

PARENTAL AUTHORITY

Disillusionment with one's parents, however good and adequate they may be both as parents and as individuals, is to some degree inevitable. Most children have a very high ideal of their parents that can hardly stand up to realistic evaluation unless the parents

5 · themselves have been unsatisfactory. Parents would be greatly surprised and deeply touched if they realised how much belief their children usually have in their character and infallibility, and how much this faith means to a child. If parents were prepared for this adolescent reaction, and realised that it was a sign that the child was growing up

10 and developing valuable powers of observation and independent judgement, they would not be very hurt, so they would not drive the child into opposition by resenting and resisting it.

The adolescent, with his passion for sincerity, always respects a parent who admits that he is wrong, or ignorant, or even that he has

15 been unfair or unjust. What the child cannot forgive is the parents' refusal to admit these charges if the child knows them to be true.

Victorian parents believed that they kept their dignity by retreating behind an unreasoning authoritarian attitude; in fact, they did nothing of the kind, but children were then too cowed to let them know how

20 they really felt. Today, we tend to go to the other extreme , but, on the whole, this is a healthier attitude both for the child and the parent. It is always wiser and safer to face up to reality, however painful it may be at the moment.

A. What do the following refer to?

1. 'their' (line 6): _____
2. 'this faith' (line 8): _____
3. 'it' (line 12): _____
4. 'these charges' (line 16): _____
5. 'the other extreme' (line 20): _____

B.

1. What would be the two results if parents were prepared for the adolescent reaction of their children?

- a) _____
- b)** _____

2. What kind of a parent does the adolescent respect?
3. Why did Victorian parents believe that they could keep their dignity by retreating behind authority?

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TWO VIEWS OF DIVORCE

The increasing divorce rate can be seen as a 'product of conflict between the changing economic system and its social and ideological superstructure (notably the family)'. In advanced capitalist industrial societies, there is an increasing demand for cheap female wage labour. Wives are encouraged to take up paid employment not only because there is a demand for their services, but also because the capitalist controlled media has raised 'material aspirations' which regulate the demand for desirable goods. These material aspirations can only be satisfied by both spouses working as wage earners. However, conflict results from the contradiction between female wage labour and the normative expectations which surround married life. 'Working wives' are still expected to be primarily responsible for housework and raising children. In addition, they are still expected, to some degree, to play a subservient role to the male head of the household. These normative expectations contradict the wife's role as a wage earner since she is now sharing the economic burden with her husband. Conflict between the spouses can result from this contradiction, and conflict can lead to marital breakdown.

While laws and procedures regulating divorce were altered, the divorce rate tended to increase quickly and since each new piece of legislation made divorce more readily available, the rate rose rapidly for a time before leveling off. Today there is one divorce in Britain for every three marriages. (In the USA the rate is one in two.) Many people have suggested that the higher divorce rates reflect an underlying increase in marital instability; the problem with this argument is that we have no way of knowing how many

'unstable' or 'unhappy' marriages existed before legislation made it possible to dissolve them in a public (and recordable) form. Some commentators have gone further and argued that more permissive divorce laws in themselves cause marital breakdown. But we can certainly be sceptical of such a view , suggesting as it does that happily married couples can suddenly be persuaded to abandon their relationship, propelled by the attraction of a new divorce law. A more plausible explanation for rises in the divorce rate after the passage of a law is that unhappily married couples were for the first time given access to a legal solution to pre-existent marital problems; in other words, changes in divorce laws are less likely to cause marital breakdown than to provide new types of solutions where breakdown has already occurred.

A. What do the following refer to?

1. 'their' (Text 1): _____
2. 'this argument' (Text 2): _____
3. 'them' (Text 2): _____
4. 'such a view' (Text 2): _____

1. What is the effect of the rise in 'material aspirations' on female employment?
2. Explain the contradiction between the female wage labour and the normative expectations of married life.
3. Give two of the opinions on the rise in the divorce rate after the introduction of legislation making divorce more readily available.
 - a) _____
 - b)** _____
4. Each text examines divorce from a different approach. Write down the difference.

SUCCESS

In our culture, success in itself implies no superior virtue. A book is not necessarily a superior one because it makes the best seller lists. Most books that achieve this distinction appeal to the mass market and are generally supported by extensive publicity. While success in the business world may require a high degree of business acumen, this quality has never before been considered a personal virtue. Today it is the achievement that counts, not the personal qualities of the individual. Sometimes success is achieved by qualities that are anything but virtuous. Until his downfall, Hitler was considered a success by a great many people throughout the world. Of course, success may attend the individual with superior abilities; however, what is acknowledged is not the personal virtue of the individual but his achievement.

The actual accomplishment is often relatively unimportant. The author of six good books may be less of a success than the writer of one best seller. What does count is the recognition. Without recognition one cannot be considered a public success.

To achieve success means to rise above the crowd, to stand out from the mass of people and be recognized as an individual. For the writer, it means that what he says or writes is now regarded as important. "He counts" is the way one successful author was described. Before his success, he didn't 'count' although what he wrote before his success may have had greater value than his subsequent work. Through success he had become important. We see this all the time. As soon as a person becomes successful, he is listened to with respect. Since he has 'made it,' his words may tell the rest of us who are still struggling the secret of his good fortune. The successful person is important to all who wish to be successful.

1. What is the relationship between superior personal qualities and success?
2. How would you define a writer who 'counts'?
3. Why is a successful person important to all who wish to be successful?

JAPANESE FREEDOM

To secure their political authority and to preserve peace, the Tokugawa shoguns isolated Japan from the rest of the world in 1639. Christianity was banned. Except for some Chinese and a small Dutch contingent, who lived closely supervised lives in Nagasaki harbour, all foreigners were expelled from Japan. Not only were Christian books barred but also any book, even a Chinese translation, dealing with any Western subject. The Japanese were forbidden on pain of death to leave their homeland. Vessels were restricted in size so that they could be used only in coastal trade and not in overseas commerce.

1. What was the reason for the Tokugawa shoguns' isolation of Japan from the rest of the world?
2. Were all foreigners really expelled from Japan? Explain.
3. Why were Christianity and Christian books banned?
4. What happened to the Japanese who tried to leave the country?
5. Why were smaller ships made?

THE HEALING POWER OF BELIEF

For the past two years, I have been studying cancer survivors at UCLA, trying to find out why it is that some people respond much better to their treatment than do others. At first, I thought that some patients did well because their illnesses were not as severe as the illnesses of others. On closer scrutiny, however, I discovered that severity of the illness was only one of a number of factors that accounted for the difference between those who get well and those who don't. The patients I am talking about here received, upon diagnosis, whatever therapy - medication, radiation, surgery - their individual cases demanded. Yet, the response to such treatments was hardly uniform. Some patients fared much better in their therapies than others.

What was it, then, that was different? Was there any one thing that all survivors had in common? Yes. I have found that the major characteristics of these survivors were very similar. Among the similarities are:

- They all had a strong will to live.
- They were not panicky about their illness.
- They had confidence in their ability to persevere.
- Despite all the forecasts to the contrary, they believed they could make it.
- They were capable of joyous response.
- They were convinced that their treatment would work.

The Placebo Effect

The mind-body effect should not be surprising in view of the experience over the years with placebos. The term 'placebo' is used to describe a 'pill' that contains no medical ingredients but that often produces the same effect as genuine medication. Placebos provide ample proof that expectations can have an effect on body chemistry. According to a recent article on placebos in *Medical World News*, studies conducted over the past 25 years have shown that placebos satisfactorily relieved symptoms in an average of 35 per cent of patients tested. These symptoms include: fever, severe post-operative pain, anginal pain, headache, and anxiety, among other complaints. The explanation for this strange phenomenon is that the human mind can create actual changes in body chemistry as a result of what it believes. If, for example, a person believes that a certain medication contains a substance that can accomplish a specific need, the body

tends to move in that direction.

- 40 An increasing number of scientists now contend that the body's healing system and its belief system are closely related. That is why hope, faith, and the will to live can be vital factors in the struggle against disease. The belief system converts positive expectations into plus factors in any contest against illness.

A. What do the following refer to?

1. 'such treatments' (line 10): _____
2. 'this strange phenomenon' (line 35): _____

B. Fill in the blanks with the words from the passage.

1. _____ is very careful study or observation. (Paragraph 1)
2. If you _____, you keep trying and do not give up. (Paragraph 2)
3. Something that is _____ is real and exactly what it appears to be, and is not fake or imitation. (Paragraph 3)
4. (A) _____ of something is evidence or facts showing that it is true or that it exists. (Paragraph 3)
5. _____ is the determination to do something. (Paragraph 4)
6. A _____ is a struggle to win power or control. (Paragraph 4)

C.

1. At the beginning of his studies, how did the doctor explain the difference in the responses of patients?
2. What is a placebo?
3. Why is a patient who takes a placebo likely to get well?

MEMORY

Memory, like sweatshirts, comes in three sizes. There is a sensory storage system which can hold information for only a very brief time period. Next is a short-term storage which can hold a small amount of information. Finally, you have a long-term storage system which holds vast amounts of information.

What psychological processes are involved in remembering a stimulus which is briefly perceived, such as the license number of a car? Psychologists have discovered that a stimulus is maintained in a sensory storage system which holds information for less than a second. The sensory storage system is called iconic memory if visual stimuli are involved or echoic memory if the stimulation is auditory.

Your sensory storage system appears to operate in a fairly automatic way. There seems to be no voluntary action you can take to prolong the life of information from sensory storage without using the next stage of memory, called short-term memory (STM), or primary memory. Information can be recycled in short-term memory by a process called rehearsal. When rehearsal is prevented or disrupted, information in short-term memory is lost and so cannot enter long-term memory (LTM). However, once information has entered long-term memory, rehearsal is no longer necessary to guarantee that information is not forgotten. While preventing items from being forgotten is the major difficulty in short-term memory, long-term memory suffers from the opposite problem. There is so much information contained in long-term memory that locating and retrieving this information can be quite difficult. Indeed, psychologists distinguish between information which is available in long-term memory and that which is accessible. All information in long-term memory is considered available; that is, it can be remembered under the proper circumstances. But only that information which actually is remembered is accessible. Thus, accessible information is always available, but available information cannot always be accessible. The process of obtaining memory information from wherever it is stored is called retrieval. In order for information to be accessible, it must first be retrieved. Retrieval of information from long-term memory is a difficult process and is not always successful. Retrieval from short-term memory is considerably easier, and many models of short-term memory assume that if an item is available in short-term memory, it is automatically accessible.

While information in short-term memory is coded primarily by acoustic features (how the words sound when spoken), information in long-term memory is organized primarily according to what the words mean. While

interference in short-term memory is based upon acoustic relationships, interference in long-term memory occurs among semantically related words.

The most dramatic distinction between short and long-term memory systems lies in their respective capacities - the number of items each system can store. Short-term memory has a very limited capacity compared to the almost unlimited storage capacity of long-term memory.

1. Where do the sounds we hear first go?
2. What is necessary for a piece of information to be transmitted to LTM?
3. What problem does LTM suffer from? Why?
4. What does 'the information is available in LTM' mean?
5. How do STM and LTM differ in terms of available and accessible information?
6. In which memory system would the words 'seat' and 'chair' be confused? Why?
7. What is the main difference between STM and LTM?

EDUCATION IN BRITAIN

Education in Britain is primarily the responsibility of local educational authorities although the central government lays down guidelines and provides or withholds money. From the end of the Second World War until the 1960's, education under state control depended on the '11-plus' examination, taken by all pupils between the ages of eleven and twelve. The most successful went to grammar schools or direct-grant schools, while the rest went to secondary modern schools. Since the 1960's, almost all local authorities have introduced comprehensive schools, where all pupils attend the same school, even though there is usually an attempt to separate them according to ability once they are there. Local authorities where the Labour Party is usually in control tend, by now, to be almost completely comprehensive; those where the Conservatives hold power have been more resistant to the change.

Throughout this period, the public schools, which are private in all except name, have continued to exist, independent of the state system. Some became direct-grant schools, accepting students who had passed the 11-plus examination and were paid for by local authorities, but this system came to an end in many cases when a Labour-controlled local authority refused to go on paying the grants because of its commitment to comprehensive education.

The public debate in England and Wales between the supporters of comprehensive schools and those who want to retain or revive grammar schools continues unabated. Every year statistics are produced to demonstrate that comprehensive schools provide better education than grammar schools (and in some cases, better than the prestigious private sector). These statistics are immediately contradicted by others proving the opposite. The local authorities have, on the whole, been converted to the comprehensive system, in some cases with enthusiasm, in others with marked reluctance. Yet, the real complication of the debate stems from the fact that although arguments are usually stated in educational terms, almost all of them are based on political opinions.

It is clear that those local authorities that have abolished grammar schools completely were determined that their experiment should succeed because of their belief that it is just as wrong to separate children by intelligence as by social class. Such authorities tend to associate grammar schools with the private sector they would also like to abolish if they had the opportunity. In their view, any system that

40 differentiates between children strengthens class barriers, and the fact that more upper-class children tend to go to university is not evidence that comprehensive schools are inferior; it is merely further evidence of the discrimination that already exists in society.

45 The defenders of grammar schools use examination results to show that children reach their maximum potential when placed with others of similar intelligence and point out that even in comprehensive schools they are put in different classes according to ability. It is difficult to believe, however, that this defence is inspired purely by a desire for academic excellence.

A. What do the following refer to?

1. 'them' (line 10): _____
2. 'those' (line 13): _____
3. 'the opposite' (line 28): _____
4. 'if' (line 42): _____

B.

1. Which students were sent to modern secondary schools until the 1960's?
2. What is the usual procedure followed in comprehensive schools for new students?
3. Which type of school is favoured by the Conservatives?
4. How do 'public schools' contradict their name?
5. What is the real basis of argument for and against comprehensive schools?
6. What is the reason for local authorities' abolishing grammar schools?
7. Why are some authorities against the private sector?
8. According to the defenders of grammar schools, what is necessary for students to be successful?

WHAT IS YOUR BEST TIME OF DAY?

Organisms exhibit biological rhythms. Some are short and can be measured in minutes or hours. Others last days or months. The idea that our bodies are in constant flux is fairly new and goes against traditional
1 medical training. In the past, many doctors were taught to believe the body has a relatively stable, or homeostatic, internal environment. Any fluctuations were considered random and not meaningful enough to be studied.

As early as the 1940's, however, some scientists questioned the homeostatic view of the body. Franz Halberg, a young European scientist working in the United States, conducted a series of experiments on mice and noticed that the number of white blood cells in these animals was dramatically higher and lower at different times of the day. Gradually,
2 such research spread to the study of biological rhythms in human beings, and the findings were sometimes startling. For example, the time of day when a person receives X-ray or drug treatment for cancer can affect treatment benefits and ultimately mean the difference between life and death.

This new science, the study of biological rhythms in human beings, is called chronobiology, and the evidence supporting it has become increasingly persuasive. Along the way, the scientific and medical
3 communities are beginning to rethink their ideas about how the human body works, and gradually what had been considered a minor science just a few years ago is being studied in major universities and medical centers around the world.

With their new findings, they are teaching us things that can literally change our lives - by helping us organize ourselves so we can work with
4 our natural rhythms rather than against them. This can enhance our outlook on life as well as our performance at work.

Because they are easy to detect and measure, more is known of daily - or circadian (Latin for 'about a day') - rhythms than other types. The most obvious daily rhythm is the sleep / wake cycle. But there are other daily cycles as well: temperature, blood pressure, hormone levels. Amid these
· and the body's other changing rhythms, you are simply a different person
5 at 9 a.m. than you are at 3 p.m. How you feel, how well you work, your level of alertness, your sensitivity to taste and smell, the degree with which you enjoy food or take pleasure in music - all are changing throughout the day. Most of us seem to reach our peak of alertness around noon. Soon after that, alertness declines, and sleepiness may set in by mid-afternoon.

Your short-term memory is best during the morning - in fact, about 15 per cent more efficient than at any other time of day. So, students, take heed: when faced with a morning exam, it really does pay to review your notes right before the test is given.

Long-term memory is different. Afternoon is the best time for learning material that you want to recall days, weeks or months later. Politicians, business executives or others who must learn speeches would be smart to do their memorizing during that time of day. If you are a student, it would be better for you to schedule your more difficult classes in the afternoon, rather than in the morning. You should also try to do most of your studying in the afternoon, rather than late at night. Many students believe they memorize better while burning the mid-night oil because their short-term recall is better during the wee hours of the morning than in the afternoon. But short-term memory won't help them much several days later, when they face the exam.

A. Fill in the blanks with words from the passage.

1. Something that is in a state of _____ is characterized by continuous changes. (Paragraph 1)
2. Something that is _____ happens or is chosen without a definite plan, pattern or purpose. (Paragraph 1)
3. _____ means finally, after a long and often complicated series of events. (Paragraph 2)
4. To _____ something means to improve its value, quality, or attractiveness. (Paragraph 4)

B.

1. What led to the study of biological rhythms in human beings?
2. How can we change our lives positively?
3. What are the daily cycles mentioned in the passage?
4. When are the majority of people most alert?
5. Why is it better to study in the afternoon?

A NEW ICE AGE (1)

Over the past several years, researchers have dug deep into Atlantic sea-floor sediments and Greenland glaciers to study the chemistry of ancient mud and ice, and they are increasingly convinced that climate change is anything but smooth. "The transition from warm to frigid can come in a decade or two - a geological snap of the fingers", says Gerard Bond, a geophysicist at Columbia University's Lamont-Doherty Observatory: "The data have been coming out of Greenland for maybe two or three decades. But the first results were really so suprising that people weren't ready to believe them."

There is a growing understanding as well that ice ages are not uniformly icy, nor interglacial periods, i.e., periods between ice ages, unchangingly warm. About 40,000 years ago, for example, right in the middle of the last ice age, the world warmed briefly, forcing glaciers to retreat. And while the current interglacial period has been stably temperate, the previous one, according to at least one study, was evidently interrupted by frigid spells lasting hundreds of years. If that period was more typical than the present one, humanity's invention of agriculture, and thus civilization, may have been possible only because of a highly unusual period of stable temperature - a fluke.

Just 150 years ago, the notion that much of the Northern Hemisphere had once been covered by thick sheets of ice was both new and highly controversial. Within a few decades, though, most scientists were convinced and began looking for explanations. Several suggested that astronomical cycles were involved, and by the 1930's the Yugoslav astronomer Milium Milankovitch had constructed a coherent theory. The ice ages, he argued, were triggered by changes in the shape of the earth's slightly oval orbit around the sun and in the planet's axis of rotation. Studies of the chemical composition of ocean-floor sediments, which depend on climatic conditions when the material was laid down, more or less supported Milankovitch's predicted schedule of global glaciation.

According to Milankovitch's cycles, an ice age could start sometime within the next 1,000 or 2,000 years. But geophysicists have realized for years that while the cycles are real and influence climate, they alone cannot explain ice ages. For one thing, Milankovitch's timing of glaciation may be broadly correct, but major glacial episodes happen when his cycles call for minor ones, and vice versa.

A NEW ICE AGE (2)

Just as last week's tremors were destroying highways, buildings and lives in Southern California, an even deadlier natural disaster was advancing slowly but inexorably south from Canada into the U.S. By midweek a huge mass of frigid arctic air had practically paralyzed much of the Midwest and East. Temperatures in dozens of U.S. cities dropped to all-time lows: -30°C in Pittsburgh; -32°C in Akron, Ohio, and Clarksburg; -33°C in Indianapolis. Chicago schools closed because of cold weather for the first time in history, Federal Government offices shut down in Washington, and East Coast cities narrowly escaped widespread power cuts due to the overuse of electric utilities to keep homes heated. Hundreds of motorists in New Jersey had to be rescued by snowmobile from an impassably icy highway, and thousands of homeless crammed into New York City's shelters to avoid freezing. By week's end, the unprecedented cold wave had killed more than 130 people.

Whatever happened to global warming? Scientists have issued apocalyptic warnings for years, claiming that gases from cars, power plants and factories are creating a greenhouse effect that will boost the temperature dangerously over the next 75 years or so. But if last week is any indication of winters to come, it might be more to the point to start worrying about the next Ice Age instead. After all, human-induced warming is still largely theoretical, while ice ages are an established part of the planet's history. The last one ended about 10,000 years ago; the next one - for there will be a next one - could start tens of thousands of years from now. Or tens of years. Or it may have already started.

A. Find the words which mean the same as the following.

1. approaching (paragraph 1): _____
2. almost, not completely (paragraph 1): _____
3. not done or known before (paragraph 1): _____
4. cause something to increase (paragraph 2): _____
5. sign (paragraph 2): _____

B.

1. Which U.S. city had the lowest temperature?

PROOF AGAINST HEART ATTACKS

Does a drink a day keep heart attacks away? Over the past 20 years, numerous studies have found that moderate alcohol consumption - say, one or two beers, glasses of wine or cocktails daily - helps to prevent coronary heart disease. Last week a report in the *New England* 5 *Journal of Medicine* added strong new evidence in support of that theory. More importantly, the work provided the first solid indication of how alcohol works to protect the heart.

In the study, researchers from Boston's Brigham and Women's Hospitals and Harvard Medical School compared the drinking habits 10 of 340 men and women who had suffered recent heart attacks with those of healthy people of the same age and sex. The scientists found that people who sip one to three drinks a day are about half as likely to suffer heart attacks as nondrinkers are. The apparent source of the protection: those who drank alcohol had higher blood levels of 15 high-density lipoproteins, or HDL's, the so-called good cholesterol, which is known to ward off heart disease.

As evidence has mounted, some doctors have begun recommending a daily drink for cardiac patients. But most physicians are not ready to recommend a ritual happy hour for everyone. The risks of teetotaling 20 are nothing compared with the dangers of too much alcohol, including high blood pressure, strokes and cirrhosis of the liver - not to mention violent behaviour and traffic accidents. Moreover, some studies suggest that even moderate drinking may increase the incidence of breast and colon cancer. Until there is evidence that the benefits of a 25 daily dose of alcohol outweigh the risks, most people won't be able to take a doctor's prescription to the neighbourhood bar or liquor store.

A. What do the following refer to?

1. 'that theory' (lines 5-6): _____
2. 'those' (line 11): _____

B. Find words in the text which mean the same as the following.

1. many (paragraph 1): _____
2. dependable, positive (paragraph 1): _____
3. to drink, taking only a small amount (paragraph 2): _____
4. to prevent something bad (paragraph 2): _____

FROM THE OTHER SIDE OF THE GENERATION GAP

Contrary to the impression that grandmothers are delighted to help their grown daughters and care for their grandchildren, a study of multi-generational families indicates that many older women resent the frequent impositions of the younger generations on their time and energy.

"Young women with children are under a lot of pressure these days, and they expect their mothers to help them pick up the pieces," noted Dr. Bertram J. Cohler, a behavioral scientist at the University of Chicago. "This is often the strongest source of resentment on the part of Grandmother, who has finished with child-caring and now has her own life to live. Grandmothers like to see their children and grandchildren, but in their own time."

Dr. Cohler is the director of a study, supported by the National Institute of Aging, of 150 working-class families that live in a Midwestern suburb. He and a collaborator, Dr. Henry U. Grunebaum of Harvard Medical School, have already completed an intensive investigation of four such families in New England, summarizing their findings in a book, *Mothers, Grandmothers and Daughters*, published recently by Wiley-Interscience for professional audiences.

Dr. Cohler tells of a middle-aged Boston woman who works as a seamstress all week and for her church on Sundays. Every Saturday (her only day off) her daughter and family visit, expecting Mother to make lunch, shop and visit. "That's not how she wants to grow old," said Dr. Cohler, who was told by the older woman: "My daughter would never speak to me if she knew how mad I get."

In all the four New England families studied, the older women resented the numerous phone calls and visits from their grown daughters, who often turned to their mothers for advice, physical resources, affection and companionship as well as baby-sitting services. "American society keeps piling on the burdens for older people, particularly those in their 50's and 60's," Dr. Cohler said in an interview here. "They are still working and taking care of their grown children and maybe also their aged parents. Sometimes life gets to be too much. That's one reason many of them move far away, to Florida or Sun City (Arizona). Older people need more space and time to attend to their own affairs and friends. Young people don't understand this, and that's part of what creates tension between generations."

He has found that, contrary to what the younger generations may

40 think, older people have an enormous amount to do. "More than half
 of working-class grandmothers still work, and if they're retired they
 have activities in the community that keep them occupied," he said.
 "Each generation has got to appreciate the unique needs of the other,"
 Dr. Cohler went on. "The younger generation has to realize that
 45 grandparents have busy, active lives and that they need privacy and
 more space for themselves. Moreover, the older generation has to
 realize that continuing to be part of the family is important to the
 younger generation and that they need help and support."

A. What do the following refer to?

1. 'who*' (line 28): _____
2. 'They' (line 32): _____
3. 'this₁' (line 37): _____
4. 'that' (line 41): _____
5. 'the other' (line 42): the other _____
6. 'they*' (line 47): _____

B. Mark the statements as True (T) or False (F).

- _____ 1. Young women want their mothers to help them solve their problems.
- _____ 2. Grandmothers want their children and grandchildren to visit them as often as possible.
- _____ 3. Some grandparents move far away to have more time for themselves.
- _____ 4. One of the women Dr. Cohler spoke to complained about her daughter.

C.

1. Who finances Dr. Cohler's study?
2. What kind of families did Dr. Cohler investigate?
3. What do younger people have to realize?

LEARNING IT AT HOME

Learning a language at home via a home study course is often the most convenient, though not necessarily the most efficient. You can go at your own pace and needn't adjust your schedule to accommodate a regular class. Sets of recorded lessons are available at book and record stores or by mail order. They usually cover only the more common languages, and most do not go beyond the needs of the casual tourist. The tapes and records consist of groups of phrases and conversations you learn by repetition. A set of four to six tapes and accompanying workbook might cost about \$125.

Taped lessons used by the Foreign Service Institute's School of Language Studies to train diplomats are more complete and cover a wider range of languages. The State Department does not market these tapes directly, but they are available by writing to Order Section, National Audio-Visual Center, General Services Administration, Washington, D.C. 20409. The price for a basic course of about 20 cassette tapes and a text is \$100 or so; the more cassettes, the higher the price. Delivery generally takes four to six weeks after receipt of your order.

If you want to earn credits toward a degree or prepare yourself to read foreign literature, consider a university correspondence course. A one semester course generally costs about \$135 for beginners, postage not included. Any audio materials used may involve extra cost. Course quality is comparable to on-campus offerings. All assignments are reviewed by a professor or instructor and then returned, usually within a week.

Language courses are included among the 12,000 courses listed in *The Guide to Independent Study Through Correspondence Instruction* prepared by the National University Continuing Education Association. It is available in libraries or from Peterson's Guides, P.O. Box 2123, Princeton, N.J. 08540, for \$4.50 plus \$1.25 for postage and handling.

One caveat about university correspondence courses: if your object is to achieve minimal conversational skills, either for business or pleasure, you may not be willing to expend the effort required for these courses, according to Dr. Robert Batchellor, associated with the NUCEA guide. Self-instruction requires a commitment of at least ten hours per week.

The National Association of Self-Instructional Language Programs (NASILP) assists schools in designing and operating self-instruction programs based on tape learning supplemented by text and tutorials and eligible for college credit. NASILP keeps up with all of the options,

£ including commercial programs, and will help you find a course to fit your specifications, whether or not it is a NASILP product.

A. Match each word with one of the meanings. There are more letters than numbers.

- | | |
|-----------------------------------|---|
| _____ 1. schedule (paragraph 1) | a) to spend or use energy, time, money, etc. |
| _____ 2. caveat (paragraph 5) | b) something which takes up your time because of the responsibilities you have |
| _____ 3. object (paragraph 5) | c) designed for professional use |
| _____ 4. expend (paragraph 5) | d) aim or purpose |
| _____ 5. commitment (paragraph 5) | e) giving detailed information about a specific subject |
| _____ 6. eligible (paragraph 6) | f) something suitable for or connected with something else |
| | g) a warning that you have to take something into account before you act |
| | h) a plan that gives a list of events, jobs, etc. together with the times each thing should be done |

B. Mark the statements as True (T) or False (F).

- _____ 1. Most home study courses are prepared for people studying foreign literature.
- _____ 2. Tapes of home study courses for diplomats are not found on the market.
- _____ 3. The exact price of a set of home study course is \$125.
- _____ 4. University correspondence courses are not nearly as good as those offered at universities.
- _____ 5. People taking a university correspondence course are given assignments regularly.
- _____ 6. According to Dr. Batchellor, university correspondence courses are not suitable for those who aim to achieve only conversational skills.

C.

1. What are the advantages of home study courses?
2. How can you get the tapes of home study courses?

3. How does a person taking a home study course learn the phrases?
4. How much does a one-semester university correspondence course usually cost?
5. Who prepares *The Guide to Independent Study Through Correspondence Instruction*?
6. How much do you have to pay only for the delivery of the guide?

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ANIMAL PREDATORS

No doubt the greatest single leap in human prehistory was the one we made from being helpless prey to becoming formidable predators (animals which hunt and eat others) of other living creatures, including, eventually, the ones with claws and fangs. This is the theme that is acted out over and over, obsessively, in the initiation rites of tribal cultures. In the drama of initiation, the young (usually men) are first humiliated and sometimes tortured, only to be 'reborn' as hunters and warriors. Very often the initial torment includes the threat of being eaten by costumed humans or actual beasts. Orokaiva children in Papua New Guinea are told they will be devoured like pigs; among Indians of the Pacific Northwest, the initiates were kidnapped or menaced by wolves; young Norwegian men, at least in the sagas, had to tackle bears single-handedly.

As a species, we've been fabulously successful at predation. We have enslaved the wild ungulates, turning them into our cattle and sheep, pushing them into ever narrower habitats. We have tamed some of the wolves and big cats, trivializing them as household pets. We can dine on shark or alligator fillets if we want, and the only bears we're likely to know are the ones whose name is teddy. In fact, horror movies wouldn't be much fun if real monsters lurked outside our cinemas. We can enjoy screaming at the alien or the monster or the blob because we know, historically speaking, it was our side that won.

But the defeat of the animal predators was not a clear-cut victory for us. With the big land carnivores out of the way, humans decided that the only worthwhile enemies were others like themselves - 'enemy' individuals or tribes or nations or ethnic groups. The criminal stalking his victim, the

soldiers roaring into battle, are enacting an archaic drama in which the other player was originally non-human, something either to eat or be eaten by. For millennia now, the earth's scariest predator has been ourselves.

In our arrogance, we have tended to forget that our own most formidable enemies may still be of the non-human kind. Instead of hungry tigers or fresh-cloned dinosaurs, we face equally deadly microscopic life forms. It will take a whole new set of skills and attitudes to defeat HIV or the TB bacterium - not the raging charge on the field of battle, but the cunning ambush of the lab.

A. Match each word with one of the meanings.

- | | |
|--------------------|---|
| 1. initiation rite | a) family of animals with hoofs and claws |
| 2. devour | b) fight |
| 3. tackle | c) train; make useful and safe |
| 4. ungulates | d) a large frightening object having no distinct shape |
| 5. tame | e) the ceremony of introducing someone to a special group |
| 6. blob | f) eat up quickly and hungrily |
| 7. archaic | g) a period of thousand years |
| 8. millennium | h) belonging to the distant past |

B. Mark the statements as True (T) or False (F).

- _____ 1. Human beings have always fallen helpless victims to other predators.
- _____ 2. The initiation rites in tribal cultures aimed to prepare the young for a life as fearless, bold warriors.
- _____ 3. Wild animals no longer exist as dangerous enemies to human kind.
- _____ 4. We scream at horror movies because the monsters we see on the screen may any time appear in our real lives.
- _____ 5. Once they took control of animals, human beings started to act in a non-human way.
- _____ 6. Deadly microscopic life forms will cause less trouble for human beings than big wars in the future.

SAVE THE JUNGLE - SAVE THE WORLD

The so-called 'jungle' of popular imagination, the tropical rain forest belt stretching around our planet at the Equator, has taken some 60 million years to evolve to its present state. It is, quite simply, the most complex, most important ecosystem on Earth.

Homo Faber, Man the Builder, has tragically always seen the jungle as something alien, an environment to be vanquished, replaced with his own constructions. In the past twenty years, the rate of pillage has increased alarmingly and huge tracts of verdant, beautiful forest - an irreplaceable treasure house of living things - has often given way to wasteland. The evidence is that Man will redouble his destructive efforts until the forest 'system' is smashed, and the jungle will function no more.

Many experts gloomily predict that the tropical rain forests will finally vanish around the end of our century. Well done, 20th century!

What are the burning reasons that drive men to destroy our monumental inheritance?

Man seldom does anything for entirely rational reasons; usually, the less rational his 'reasons', the more he defends them with short-term economic arguments. That is one of the modern lessons in ecology.

"We need the land for people," runs the argument. Well, many people already inhabit the tropical forest belt. There, native tribes have their own 'low-impact' life style, hunting, trapping, practising a little cultivation. Perhaps not idyllic, it is, nevertheless, a life style that does not endanger the forest ecosystem.

We stress a little cultivation because, paradoxically, the forest soil is often infertile; trees and green plants thrive on the compost of their fallen foliage, which is rapidly broken down and recycled as nutrients. So, when the jungle is cleared to plant crops, there is no means of putting fertility back into the soil. Many governments spend much time 'resettling' people in deforested areas as part of so-called forward-looking development projects, but the crop yield is meagre, and brief: the soil soon makes its point. Erosion and flooding also tend to follow deforestation.

"We need the timber," continues the argument. Well, the forests have always been generous with their riches - so far as they are able. They are not limitless. They are being exhausted at ever increasing speed. Forest ecology, wisdom in planning and less greed could keep Man and the delicate rain forest relationship in balance indefinitely. This is our last great store house, our last wonderland.

TIGHTEN YOUR BELT

The fact is that the energy crisis has been with us for a long time now, and will be with us for an even longer time. Whether Arab oil flows freely or not, it is clear to everyone that world industry cannot be allowed to depend on so fragile a base. The supply of oil can be shut off at whim at any time, and in any case, the oil wells will all run dry in thirty years or so at the present rate of use.

New sources of energy must be found, and this will take time, but it is not likely to result in any situation that will ever restore that sense of cheap and copious energy we have had in times past. We will never again dare indulge in indiscriminate growth. For an indefinite period from here on in, mankind is going to advance cautiously, and consider itself lucky that it can advance at all.

To make the situation worse, there is as yet no sign that any slowing of the world's population is in sight. Although the birthrate has dropped in some nations, including the United States, the population of the world seems sure to pass six billion and perhaps even seven billion as the twenty-first century opens. The food supply will not increase nearly enough to match this, which means that we are heading into a crisis in the matter of producing and marketing food.

Taking all this into account, what might we reasonably estimate supermarkets to be like in the year 2001? To begin with, the world food supply is going to become steadily tighter over the next thirty years - even here in the United States. By 2001, the population of the United States will be at least two hundred and fifty million and possibly two hundred and seventy million, and the nation will be hard put to expand food production to fill the additional mouths. This will be particularly true since the energy pinch will make it difficult to continue using the high-energy method of agriculture that makes it possible to combine few farmers with high yields.

It seems almost certain that by 2001 the United States will no longer be a great food-exporting nation and that, if necessity forces the exporting of food, it will be at the price of belt-tightening at home.

This means, for one thing, that we can look forward to an end to the 'natural food' trend. It is not a wave of the future. All the 'unnatural' things we do to food are required to produce more of the food in the first place, and to make it last longer afterward. It is for that reason that we need and use chemical fertilizers and pesticides

- 40 while the food is growing, and add preservatives afterward.
In fact, as food items will tend to decline in quality and decrease in variety, there is very likely to be increasing use of flavouring additives. Until such time as mankind has the sense to lower its population to the point where the planet can provide a comfortable support for all, people will have to accept more artificiality.

A. What do the following refer to?

1. 'this' (line 7): _____
2. 'this' (line 18): _____
3. 'that' (line 30): _____
4. 'if' (line 33): _____

B. Match each word / phrase with one of the meanings. There are more letters than numbers.

- | | |
|-----------------------------------|-----------------------------------|
| _____ 1. fragile (paragraph 1) | a) > extraordinarily |
| _____ 2. at whim (paragraph 1) | b) shortage |
| _____ 3. restore (paragraph 2) | c) wjthcare |
| _____ 4. copious (paragraph 2) | d) delicate / not strong |
| _____ 5. cautiously (paragraph 2) | e) bring back |
| _____ 6. pinch (paragraph 4) | f) > advance / improve |
| | g) plentiful / abundant |
| | h) wjmoutapystfongreaSQnorpurpose |

C.

1. How long are oil supplies likely to last?
2. The author says the US will no longer be a great food-exporting nation by 2001
What is the reason for this?
3. Why is it necessary to use chemical fertilizers, pesticides and preservatives?
4. What does man have to do if he wants to maintain his 'natural food' trend?

GALDIKAS AND ORANGUTANS

Birute Galdikas remembers the scene very well. She was in a cluttered London flat, anxious and awestruck, with her two heroes: Dian Fossey, the strong-willed American studying the mountain gorillas in Africa, and the elegant Briton Jane Goodall, famous for her discoveries about chimpanzees' humanlike abilities. Presiding was their common mentor, the paleoanthropologist Louis Leakey. He was preparing Galdikas, then a bookish young graduate student at the University of California, for the wilds of Borneo and life among the great apes. As Leakey jotted down campfire recipes, Galdikas turned to Goodall and asked, "What will I do when I get there?" Replied Goodall: "You'll go out and find orangutans."

More than 20 years later, Galdikas, now 46, is still following that advice. In a remote peat swamp forest of Kalimantan, the Indonesian part of the island of Borneo, she is conducting the longest study of wild orangutans ever undertaken. The youngest of Leakey's so-called trimates, the trio of women he picked to help plumb the origins of humanity's special nature, Galdikas has shed new light on the social patterns of the orangutan, literally 'man of the forest' in Malay, one of our closest relatives.

In the process, she has endured malaria, typhoid, dengue fever and skin burns from toxic tree sap. Like Fossey, who was murdered in 1985, Galdikas has been led, through her scientific work, to campaign for the protection of the endangered apes and their dwindling rain-forest habitat. Only 30,000 to 50,000 orangutans remain in Borneo and Sumatra. Galdikas' advocacy put her at odds with Indonesian authorities, who at one point threatened to end her work.

Long-lived and highly intelligent, orangutans dwell and travel high in the rain-forest canopy, revealing themselves only to the dedicated. As a result of her years in a 40-sq-km study area in the Tanjung Puting National Park, Galdikas has been able to follow individuals from infancy. She has learned that the orangutans there have their first offspring at the age of 16. Subsequent births, always a single infant, come every eight years, the longest birth interval of any known wild species. Zoo orangutans reproduce much faster. If her findings are true for all wild populations, she says, "orangutans are much more vulnerable to extinction than anyone thought."

Experts believed that big male orangutans fight with one another, but no modern scientist had seen a battle until Galdikas, who waited months for such a confrontation. "At the end there was blood and tufts of hair all over the forest floor," she says. But the battle was broken off well short of permanent injury or death. A solitary creature, the orangutan does not live in groups or families like other great apes. But she has found indications of a

subtle social system: at times adolescent males and females travel together without mating, almost as friends, evidence that one of our closest relatives is not completely asocial.

A. Complete the following table about Borneo orangutans.

characteristics1	characteristics2	characteristics3	habitat	train-forest
canopy	reproduction1. at very long intervals, i.e.	reproduction2. always at a time		
3. have the first	reproduction	social behaviour1. social		
behaviour2.		, but not completely asocial		
e.g.	social behaviour			

B.

1. What do the three women mentioned in the passage have in common?
2. What is the significance of Galdikas' study?
3. Why has she campaigned for the orangutans and their habitat?

THE LONG HABIT

Just like our remotest ancestors, we refrain from talking about death, despite the great distance we have come in understanding some of the profound aspects of biology. We have as much distaste for talking about personal death as for thinking about it; it is an indelicacy. Death on a grand scale does not bother us in the same special way: we can sit around a dinner table and discuss war, involving 60 million volatilized human deaths, as though we were talking about bad weather; we can watch abrupt bloody death every day, in colour, on films and television, without blinking back a tear. It is when the numbers of dead are very small and very close that we begin to think in scurrying circles. At the very center of the problem is the naked cold deadness of one's own self, the only reality in nature of which we can have absolute certainty, and it is unmentionable, unthinkable. We may be even less willing to face the issue at first hand than our predecessors because of a secret new hope that maybe it will go away. We like to think, hiding the thought, that with all the marvelous ways in which we seem now to lead nature around by the nose, perhaps we can avoid the central problem if we just become - next year, say - a bit smarter.

"The long habit of living," said Thomas Browne, "indisposeth us to dying." These days, the habit has become an addiction: we are hooked on living; the tenacity of its grip on us, and ours on it, grows in intensity. We cannot think of giving it up, even when living loses its zest - even when we have lost the zest for zest.

We have come a long way in our technological capacity to put death off, and it is imaginable that we might learn to stall it for even longer periods, perhaps matching the life spans of the Abkhasians, who are said to go on for a century and a half. If we can rid ourselves of some of our chronic, degenerative diseases, cancer, strokes, and coronaries, we might go on and on. It sounds attractive and reasonable, but it is no certainty.

We long for longevity, even in the face of plain evidence that long, long lives are not necessarily pleasurable in the kind of society we have arranged thus far. We will be lucky if we can postpone the search for new technologies for a while, until we have discovered some satisfactory things to do with the extra time. Something will surely have to be found to take the place of sitting on the porch re-examining one's watch.

GIOVANNA AMATI: ONE FAST WOMAN

What makes a glamorous young woman want to risk life and limb on the track?

"Motor racing is a passion. For me it's so deep I can't live without it,"
1 says speed-loving Giovanna Amati, a 27-year-old Italian who is widely acknowledged to be one of the fastest women drivers around.

As a member, last year, of the British-based team GA Motor-sports, she competed in Formula 3000 races in a car twice as powerful as a Jaguar XJS. She raced at 180 mph in a class that has won a reputation for aggressive competitiveness, with many drivers taking dramatic risks to make their mark. This year, however, she is without the money necessary to race in F3000, a group that is just one step below Formula 1, so she is
2 competing as a guest driver at circuits around the world while looking for the right sponsorship package. "I don't want to be decoration at the track" she says. "I want to win." Determination shines through this beautiful woman's every move and every word. When she was 15, she used to ride a 350cc motorcycle around her native city of Rome, hiding it from her parents. A year later, she bought a 500cc machine and she still keeps a motorcycle at home today.

Despite opposition from her father, a Roman industrialist, Giovanna
3 pursued her driving ambition, joining a racing school where she won the graduates race in 1980. From there she has worked her way up successive formulas.

Motor racing is a sport still heavily dominated by men. Some men,
4 particularly fellow Italians, find their ego dented when they're beaten by her, says Giovanna.

She spends as much time working with the mechanics as she does on
5 the track. "I love everything about the cars. You have to enjoy the mechanical side and be able to explain exactly why you think the car is not performing correctly."

Vital factors in achieving racing success are physical fitness and mental attitude. "You can't afford to get tired. You're often racing for one
6 and a half hours in temperatures of around 30 degrees. In tennis, if you miss a ball, you lose a point. In motor racing a mistake can cost you your life."

When she's in Rome, Giovanna works out every day with her coach at
7 the sports clinic she attends. "I do a lot of skipping to build up stamina, weight training for strength and many reaction exercises." Her diet and health are monitored by a nutritionist who analyses her blood and adjusts

7 her eating plans accordingly.

The risks in racing are huge and drivers have to rise above them. "You don't think about accidents," says Giovanna. "You feel sorry, of course, if 8 someone is injured but you can't let yourself dwell on it - that would make you slow down."

Motor racing also demands sacrifices. "You risk everything - as well as your life, you risk losing your friends and your security. I do miss not 9 having a man but I have to be number one when I'm with a man; he must be there to care for me when I am at home - and that's very difficult to find."

· The glamorous, big money image of racing holds little appeal. "There are people who race for the money," says Giovanna, "but I don't. And 10 you don't go to parties - you have to sleep, to relax . If I wanted to go to parties, I'd be at home in Rome."

A. Find words or phrases in the text which mean the same as the following.

1. strong, deep and uncontrollable feeling (paragraph 1): _____
2. striking (paragraph 2): _____
3. followed (paragraph 3): _____
4. gradually became better in (paragraph 3): _____
5. damaged or hurt (paragraph 4): _____
6. necessary (paragraph 6): _____
7. carefully observed (paragraph 7): _____
8. think about (paragraph 8): _____

B. Mark the best choice.

The main idea of the sixth paragraph is that _____.

- a) racing at high temperatures makes the driver lose his physical balance
- b) tiredness is the cause of fatal racing accidents
- c) a race driver should be both physically and mentally fit
- d) motor racing is more difficult than playing tennis

C. Mark the statements as True (T) or False (F).

- _____ 1. Competitors entering Formula 3000 races have to spend money out of their own pockets or have sponsors.
- _____ 2. Amati doesn't enjoy riding motorcycles.
- _____ 3. Male drivers have readily accepted Amati as a competitor.
- _____ 4. The mechanical side of racing is as important as the skill shown on **the** race-track.
- _____ 5. Amati does three main kinds of exercise at the sports clinic.

- D.
1. What is one of the greatest risks in motor racing?
 2. How does Giovanna rise above the risks?
 3. Is she optimistic or pessimistic about accepting men into her private life? Why?

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THE FIRES OF CHRISTMAS

Eyes looked skyward for rain, but the only clouds were of smoke. Heat and wind around Sydney last week dried a path for more than 150 fires to blaze in the worst natural disaster to hit the country in the 200 years since British settlers arrived. By week's
5 end more than 400,000 hectares were alight. At least four people had died; scores of homes had been destroyed and thousands of 1 people had been evacuated. With highways and rail lines closed to the north, access to Australia's largest city was limited. The shells
10 of the Sydney Opera House, the city's landmark, are normally a bright and shiny white in the sunshine, but last week they were a dull orange.

The first fires began in the northern part of the state of New South Wales a few days after Christmas. By early last week there was a quilt of 40 blazes. By Wednesday there were 80, Thursday 2
15 90, Friday 150. A quarter of the state was under threat, from the Queensland border to the New South Wales southern coast. Sydney Was bracketed by fires to the north, south and west.

Hundreds of people made dramatic escapes, taken off threatened shores by surf-boats or lifted by helicopters as flames neared
20 remote camping spots. An old woman, carried from her home, clutched a framed picture to her heart. In places like Newcastle and Lake Macquarie, skies were black and the Sun orange. "It's like 3 being on another planet," said Jill Allen, who works near Lake Macquarie. "It looks like a storm coming. We wish it was."
25 Beaches were covered with ash and charred leaves. In Pittwater, a picturesque inlet just north of Sydney, a flotilla of yachts, dinghies and ferries evacuated several hundred people from the densely

wooded shores.

30 Compounding the tragedy was the fact that nature's persistence
had been abetted. Authorities said perhaps half the blazes were the
work of arsonists. A \$100,000 reward was offered after news that
some fires had been deliberately lit. Police soon received an
estimated 850 phone calls from people claiming to have seen 4
arsonists. Authorities have arrested 11 people, including at least
35 two teenagers. A 13-year-old boy is to appear in the Children's
Court in Sydney in connection with one blaze. There was public
outrage that a Sydney hotel had threatened to dismiss an employee
who is a volunteer fire fighter unless he returned to work.

The disaster, however, also brought out the best in some people.
40 Residents risked their own homes to help save those of their
neighbours; general stores opened their shelves to people battling
blazes. At the front line, the thousands of fire fighters were
tenacious, but the battle was unequal, even with the help of troops
and fire fighters brought in from other states. Because of the fires' 5
45 spread and ferocity, authorities could only hope to protect lives and
minimize property damage. Beyond that, other allies were needed.
In one meeting, John Fahey, the premier of New South Wales,
called for help from "the weather and God above to fight the
intense fires." Neither seemed to be cooperating. Meteorologists
said no rain was likely for the next few days.

A. What do the following refer to?

1. 'they' (line 10): _____
2. 'those' (line 40): _____

B. Find words in the text which mean the same as the following.

1. sent or carried to a place of safety (paragraph 1): _____
2. held tightly in the hand (paragraph 3): _____
3. a group, used especially to refer to a group of small ships (paragraph 3): _____
4. people who set fire to a place on purpose (paragraph 4): _____
5. a very strong feeling of anger and shock (paragraph 4): _____
6. being determined, not giving up easily (paragraph 5): _____
7. the quality of being violent, or aggressive and intense (paragraph 5): _____

GENETIC GEOGRAPHY

It's far from perfect, but researchers unveil the first complete map of the 23 pairs of human chromosomes.

The first maps of the new world, drawn back in the age of Columbus and Magellan, were pitifully primitive. The early European explorers and cartographers thought that America was just a narrow strip of land and that the Pacific Ocean was small enough for a galleon to cross in a couple of weeks. But despite all their shortcomings, those first stabs at mapmaking captured the imaginations of adventurers and spurred more voyages of discovery.

In much the same way, today's explorers of the genetic frontier have doggedly navigated the 23 pairs of human chromosomes in their search for various genes - not always sure which landmarks to trust, or how far away the goal was. The hunt will now be easier, thanks to last week's announcement that an international team of scientists, led by Dr. Daniel Cohen at the Center for the Study of Human Polymorphism in Paris, has produced the first fully-fledged - if still rough - map of the human genome. "This is a major step forward," says David Ward, a Yale geneticist who has been analyzing the map for errors. "It's a first pass, and it will have its warts. But it's still significant."

Composed of long chains of DNA containing perhaps 100,000 genes, the human genome is far too vast to analyze all at once. So scientists use special enzymes to chop the chromosomes into small manageable pieces and pick out small identifiable stretches - called markers - on each segment. When researchers are searching for a disease gene, they look for a marker that is common to all people who suffer from that ailment. If one is found, then the defective gene is probably located somewhere near that marker. The problem is that although the gene hunters know where the marker is located on the chromosome, they don't necessarily know how close it lies to the suspect gene.

That's why Cohen's new map will come in handy. To produce it, his group sliced many sets of chromosomes into thousands of segments and put each piece into a yeast cell. The cells then made thousands of copies of every piece of the human DNA. By studying different possible arrangements, Cohen's computerized machines were able to figure out the positions of a whole list of common markers as well as the proper order of the pieces.

Cohen's laboratory now has in storage multiple copies, or clones, of about 33,000 chromosome segments. So if gene hunters want to search the

area around a particular marker, they can request copies of the relevant DNA segments. Says Cohen: "You can call and say, 'I need this and this clone,' and you'll get it in two days."

Anyone wanting a description of the entire map should be able to obtain it through a computer: Cohen has promised to feed the information into the Internet, the global communications network most heavily used by scientists. "It should be equally available to all the world," he says.

The ultimate goal for biologists is to determine the exact sequence of all the chemical components of all 100,000 genes. That will give scientists the full, detailed genetic instructions for a human being. But since that map will contain 3.5 billion separate points, it probably won't be completed until after the turn of the century.

A. The following points are not in order. Arrange them in the order in which they are mentioned.

- _____ a) the procedures followed in the search of a disease gene
- _____ b) the length of time needed for the completion of the map of the human genome
- _____ c) the network of communications scientists commonly use
- _____ d) where Dr. Cohen conducts his studies
- _____ e) how the map of the human genome was produced
- _____ f) what the human genome consists of
- _____ g) who has analyzed the map of the human genome

B.

1. What were the shortcomings of the first geographical maps?
2. How do scientists cut chromosomes into small pieces?
3. What are clones?
4. Why is it important to determine the exact sequence of the chemical components of genes?

GENETIC MANIPULATION

Ever since man the hunter and gatherer gave up his nomadic way of life and began to tend stock and grow crops, he has been involved with genetic manipulation. Firstly, in ignorance, simply by choosing to rear particular animals or plants which were in some way advantageous to his developing lifestyle, and then much later, since the science of genetics began to develop, man has been engaged in breeding programmes designed to produce varieties of plants and animals exhibiting the specific characteristics which fit them to his various needs.

As man's exploitation of natural resources has continued and industries have developed based on the synthetic ability of micro-organisms, particularly the bacteria and fungi, his need for knowledge of the fundamental principles of the genetics of these organisms has increased and the new science of molecular genetics has emerged. The discipline seeks to understand the molecular base of inheritance and the way in which the information encoded by deoxy-ribonucleic acid (DNA) is utilized by the living cell.

Advances in the field of recombinant DNA research over the past decade have given the geneticist the techniques required to mobilize individual genes, that is, specific sequences of DNA which code the amino acid structure of single proteins, and then transfer these genes from a donor to a recipient organism, thus conferring on the recipient the ability to synthesize the gene product. This is the practice of genetic manipulation as we understand the term today and which has become a cornerstone of the new Biotechnology. Now, in addition to searching in nature for wild micro-organisms capable of producing specific products, a process which is often long and tedious and sometimes unrewarding, microbial hosts can be tailored for specific purposes by introducing foreign genes into them. The source of this foreign DNA can be microbial, animal, or plant and thus microbial hosts can be converted into biosynthetic factories capable of making a wide diversity of materials needed in every aspect of our lives from food and fuel to agriculture and medicine.

Most recombinant DNA experiments are designed to transfer specific genetic information from a donor organism to a recipient cell so that the newly acquired gene will be expressed and will result in the production of a 'foreign' protein. In order to do this, the DNA to be transferred must first be isolated from the donor organism and inserted into a DNA carrier or vector molecule which will be used to transfer it into its new host.

The ease with which fragments of DNA can be cut out of large DNA molecules, present in the chromosomes of plants and animals, and inserted

into vectors, has been assisted greatly by the discovery within the last 20 years of a group of enzymes known as restricted endonucleases. These enzymes recognize specific base sequences on DNA molecules and cut them precisely within or near that sequence. There are currently some three hundred of these enzymes known and some forty or so are commercially available in a highly-purified form.

The enormous growth of interest and input of capital into researching the applications of recombinant DNA research over the past decade is evidence of the potential benefit to man which these techniques can provide. Independent of its use for fundamental research in molecular genetics, a field which has provided and will continue to provide invaluable information to both academic and applied geneticists, recombinant DNA technology has already made important contributions in several areas of applied science.

A. The following list of points are not in order. Arrange them in the order in which they are mentioned.

- a) how DNA transfer is carried out
- b) specific examples of micro-organisms
- c) the scope of molecular genetics
- d) man's involvement in genetic manipulation
- e) the sources of foreign DNA

B. Mark the statements as True (T) or False (F).

- 1. Early man's preference to grow particular plants is considered to be a kind of genetic manipulation.
- 2. The emergence of molecular genetics led to the onset of industries based on the synthetic ability of micro-organisms.
- 3. Genetic manipulation now is mainly the practice of transferring individual genes from one organism to another.
- 4. Only wild micro-organisms can act as hosts to foreign DNA.
- 5. Enzymes are used to identify and isolate DNA sequences.
- 6. There are about forty enzymes in the group known as restricted endonucleases.

C.

1. What is a gene?

2. What happens when specific genetic information is transferred to a recipient cell?

THE TREASURE OF KING PRIAM OF TROY

For Heinrich Schliemann, a German-born amateur archaeologist digging in the heat and dust of western Turkey in 1873, it was the discovery of a lifetime: the legendary treasure of King Priam of Troy,

- 1 celebrated by Homer in the *Iliad*. Painstakingly and perilously excavated, smuggled in pieces to Schliemann's residence in Greece and revealed to an astonished world a short time later, the find was the biggest news in archaeology until King Tut's tomb was discovered in 1922.

Last week, nearly a half-century after it disappeared from a Berlin Bunker in the chaos at the end of World War II, King Priam's treasure surfaced again. "I have held these dull gold vessels," said Yevgeni Sidorov, the Russian Minister of Culture, in *Literaturnaya Gazeta*. "They

- 2 look modest, but the feeling of heat and energy of many millennia takes your breath away." Sidorov confirmed that King Priam's trove was captured by the Red Army when it sacked Berlin in 1945. That had long been suspected. In a 1991 article in the magazine *ART News*, Konstantin Akinsha and Grigorii Kozlov, two Soviet writers with access to secret KGB documents, first reported that the Russians had spirited the treasure away.

The Russians eventually plan to exhibit the collection, which originally included a large silver vase containing about 9,000 gold objects, half a dozen bracelets, a bottle and several gold cups. But Irina

- 3 Antonova, director of Moscow's Pushkin Museum, could not say exactly how much of Priam's treasure was actually in Moscow. "Since these items have been kept according to a regime of strict conservation, where only one person had access to them," she said, "and since scholars were able to see the treasures for just a few days, it is difficult to say now what there is and in what quantities."

- 4 The original gatherer of the trove was no upright Indiana Jones sort but a multilingual adventurer who never hesitated to inflate his own legend. After obtaining U.S. citizenship, perhaps by fraud, Schliemann divorced his Russian wife and married a Greek mail-order bride. He then travelled to Turkey, where, as an American, it was easy for him to get a permit to dig for history. Uncovering evidence of seven cities on the site of Troy, he determined from his reading of Homer, which he treated as gospel, that it was the second, or "burnt," city to which the *Iliad* referred. Modern scholars are increasingly skeptical that Homer was Schliemann's muse, pointing to the fact that Schliemann's Troy dates from around 2500-2200 B.C., far too old for the saga, which takes place around 1250 B.C.

Turkey as well as Germany and Russia will probably lay claim to the treasure. Schliemann's original right to the treasure was contested by Turkey and decided in a Turkish court in 1880; the wealthy prospector was fined a nominal sum, although the Royal Museums of Berlin chipped in 50,000 gold francs to placate angry Turkish authorities. PAID IS PAID! screamed a headline in a Berlin newspaper last week.

Possession, however, is nine-tenths of the law, and the Russians are unlikely to give the treasure up gracefully. In the meantime, the only sure thing is that lawyers of several nations will engage in a battle that will make the Achilles-Hector struggle look like a picnic before the gates of Troy. Wherever it really was.

A. Find words in the text which mean the same as the following.

1. taken out of ground (paragraph 1): _____
2. treasure (paragraph 2): _____
3. means of reaching (paragraph 3): _____
4. cause to stop feeling angry (paragraph 5): _____
5. in a pleasant way (paragraph 6): _____

B. Mark the statements as True (T) or False (F).

- _____ 1. King Priam's treasure was transported legally to Greece by Schliemann.
- _____ 2. The Russians secretly carried the treasure from Berlin to Russia at the end of the Second World War.
- _____ 3. The whole treasure was originally kept in a large silver vase.
- _____ 4. It is not exactly known whether the whole or parts of the treasure are in Russia.
- _____ 5. The writers Akinsha and Kozlov were first told about the treasure by Irina Antonova.
- _____ 6. Schliemann married a Greek probably to make matters concerning the treasure easier for himself.
- _____ 7. There are doubts about the treasure really dating from the time of Homer's saga.
- _____ 8. Turkey took Schliemann to court for stealing the treasure.
- _____ 9. The Royal Museums of Berlin tried to prevent Schliemann from paying the fine and getting the treasure.
- _____ 10. Two nations will be claiming the treasure in the future.

SINGAPORE'S TRAFFIC POLICY

Singapore possesses all the ingredients for traffic disaster. The island city-state has a large population (3 million), a limited land area (626.4 sq.km), booming economic growth and one of the highest automobile densities in the world (81 per km of roadway, vs. 43 in Japan and 17 in the U.S.). In other rapidly growing Asian metropolises, like Bangkok, Taipei and Seoul, such conditions have wreaked bumper-to-bumper bedlam- in the streets. Yet, Singapore's traffic moves smoothly. Much of the explanation lies in sound urban planning and an effective mass-transit system. Traffic-flow engineering - like restricted zones that bar automobiles without a special permit - also helps. But the main thing that keeps gridlock at bay is the government's decree that the car population can grow no faster than the road network - some 2% to 3% a year. That policy, though effective at avoiding road snarls, has led to the highest car prices in the world.

For starters, all cars are slapped with a 45% import tariff. Then owners must pay a one-time registration fee of \$600, plus an additional charge equal to 150% of the car's market value. When even those regulations failed to stem the natural demand, Singapore, in 1990, unveiled its toughest requirement yet: the Certificate of Entitlement, a permit available only in limited numbers that prospective car buyers must obtain before making their purchases. COEs are sold through a complex auction system; the prices vary each month depending on the number of bidders.

The result is that buying a car can be far costlier in some months than in others. January's COE prices hit record highs: \$10,061 for a Honda Civic (up \$2,208 since December), \$11,212 for a Honda Accord (up \$2,242). When added to the basic costs of the car, import duties and registration fees, it means that a Civic would cost around \$40,780, an Accord would run some \$56,600.

Oh yes, and since the government wants to cut down not only congestion but also air pollution, all new cars sold after next July will require catalytic converters, adding about \$1,200 to the price. And all this merely gets the car to the driveway. The owner must then pay annual road taxes. These fees vary with the size of the vehicle, averaging \$690 for a Civic and \$1,200 for an Accord. The cumulative result of these schemes: automobile sales for 1991 were down 10% from the previous year, to 24,000.

Anyone seeking to avoid all these extra costs by holding onto an old clunker runs into another welter of regulations. An owner gets a substantial credit toward the registration and permit for a replacement only if the previous car is scrapped before it is 10 years old. Cars dating back 10 years or more are socked with an annual road-tax surcharge of 10%; those 14

years or older pay a 50% surcharge.

Singaporeans are sympathetic to the government's goal of keeping traffic moving, but the mood has soured as COEs have soared in price, placing the ownership of an automobile beyond the reach of all but the very wealthy - or the very desperate.

A. Provide the following information.

1. Singapore's population: _____.
2. Singapore's land area: _____
3. Singapore's automobile density: _____;
4. what COE stands for: _____
5. the total cost after taxes of a Honda Civic: _____
6. the total cost after taxes of a Honda Accord: _____
7. the cost of catalytic converters: _____
8. the number of cars sold in 1991: _____
9. the annual road-tax surcharge for cars which are 10 years and older: _____
10. the annual road-tax surcharge for cars which are 14 years and older: _____

B. Mark the statements as True (T) or False (F).

- _____ 1. Singapore has a higher automobile density than Japan.
- _____ 2. Bangkok, Taipei and Seoul have serious traffic problems.
- _____ 3. All Singaporean citizens face two extra charges or taxes when buying a car.
- _____ 4. COEs are sold at a fixed price.
- _____ 5. The Singaporean government doesn't care about the air pollution caused by traffic.
- _____ 6. Despite all efforts, car sales in Singapore increased in 1991.
- _____ 7. The government discourages people from using cars which are over 10 years old.
- _____ 8. The traffic moves smoothly in Singapore.
- _____ 9. Singaporeans disapprove of the price of the COEs.
- _____ 10. The government control on cars and traffic is very weak in Singapore.

SPEED KILLS

Every western country save one believes that maxim and has national speed limits to make the point, reducing · pollution in the bargain.

- 1 Germany, where some locals guard the entitlement to drive 200-plus km/h as though it were a natural right and visitors prize a freedom denied at home, remains the exception: there is only one limit on most of the superhighways, and that is the car's performance.

- 2 But the days of warp drive on the autobahn may be numbered. As a result of a recent court decision on liability incurred by superfast drivers, new obstacles to high speed are rising. The ruling won applause from an ever more vocal chorus of speed-limit advocates. Defenders of no-limit driving are as determined as ever but look like an increasingly isolated minority.

- 3 A long-standing proposal by the Green Party to lower superhighway speed to 100 km/h divided the public more or less evenly in the late 1980's. "But more recently," says pollster Jochen Hansen of the Allensbach Institute, "there has been a greater inclination to see 130 km/h as a good standard." The latest survey, commissioned by the Environment Ministry, confirms that 72% of Germans would like to see a national speed limit, with most citing 120 km/h, also advocated by police organizations, as a reasonable possibility. Environmentalists cite a litany of studies to show that higher speed means increased CO₂, ozone-damaging N₂O (nitrogen oxide) and particulate emissions as well as increased fuel consumption.

- 4 However broad such support, it has not been able to dent the political influence of auto enthusiasts and carmakers. The latter, who make up one of Germany's most powerful industries and account for 1 in every 7 jobs, argue that speed limits would deprive the likes of Mercedes-Benz, BMW and Porsche of a key competitive advantage: the right to say their cars are engineered to the driving standard of the autobahn, known the world over for uncapped speed.

- 5 Why German car buffs are so militant in their determination to drive fast remains a subject of much speculation. Some argue that the automobile is the supreme symbol of Germany's postwar economic achievement and its obsession with quality products, others suggest that the autobahn is the only place where individuals living in one of the world's most regulated societies can vent aggression. No-limit supporters have the government's ear: Chancellor Helmut Kohl has sworn none will be introduced on his watch.

THE RAYS ARE NOT COLOURED

Newton first understood, more than 200 years ago, that "the Rays, to speak properly, are not coloured," and "Colours in the Object are nothing but a disposition to reflect this or that sort of Ray more copiously than the rest..." Yet colour seems so compellingly to be a property of an object that few among us doubt the obvious. Indeed, the insights of Newton, supported by two centuries of scientific elaboration, are not fully appreciated even by the practitioners of colour, such as the artist and the paint manufacturer, let alone the man in the street.

W.D.Wright is a physicist and one of the fathers of the CIE (Commission International de l'Eclairage) system of colour specification. Despite the proven usefulness of this system, Wright admits that it "does not give precise information about the spectral composition of the light or any exact information about the sensation..." Accordingly, Wright's interests, reflected in this book, have extended well beyond classical colourimetry to the use of colour in art and television, the teaching of colour in schools, and the practical and theoretical problems presented by colour-defective vision.

The difficult problem raised by the coloured appearance of objects provides a recurring theme for some of the nine essays of this slim volume. Is it possible that the man in the street is right to believe what he sees? Wright struggles hard to find a proper basis for restoring colour to the object. He notes that the main task of vision, for which colour is not necessary, is to render objects visible. Although the initial basis for colour vision does lie in the spectral modification of light by the object - just as Newton discerned - such modified light is far from the only basis for colour perception. Somehow, Wright says, colour projects light back out to, is modified by, and becomes an inherent property of the object.

Most of the book consists of the texts of invited lectures delivered from 1951 to 1966. It is easy to see why Wright is so often asked to speak. His remarks are lucid and reflect his enthusiasm for a subject with which he has had more than 40 years of experience. Most of the material will be readily understood by the non-expert. The lectures point more to problems than solutions since they do not attempt to deal with a large percentage of the experimental evidence bearing upon the topics discussed.

THE SHAME AND PAIN OF SUDDEN RUIN

Walter Armanini, a city councilor, was en route to his Milan office on May 19, 1992 when his car phone rang. "There are people waiting for you at the office," said a colleague. "They won't give their names, and they won't go away." Armanini's first thought was that the strangers might be kidnappers. When the men introduced themselves as detectives, there to arrest him for soliciting \$125,000 in kickbacks, Armanini, 56, knew his life would never be the same. He was permitted to return home and pack a bag. One of the arresting officers advised him to change out of the dark suit he was wearing: "You won't need it where you're headed."

Armanini's destination was Milan's San Vittore prison, which he had often passed without really looking at it. "I never thought about what happened inside," he says. "It wasn't a part of my world. Sometimes, out of superstition, I'd make a sign as I went past to ward off evil."

He found himself in evil's midst. He posed for mug shots, holding a number across his chest, and was fingerprinted. As he walked to his cell, there was a roar from the inmates. "They knew I'd been arrested, and they were laughing and shouting at me to stop stealing because there'd be nothing left for them."

Armanini was among the first to be arrested in Operation Clean Hands, a corruption probe that has swept up more than 2,500 members of Italy's business, political and government elite. The profound despair of facing ruin and imprisonment has led 12 of them to commit suicide, a reaction Armanini says he understands. Although he endured the humiliation of a televised trial and was sentenced to four years, the horror that stays with him most palpably is the 41 days he spent at San Vittore. "I can still smell the urine in the halls, hear the barking of the guard dogs outside, see the flash of the searchlight overhead," he says. "I just can't get those things out of my mind."

He spent his first night in a 2-m by 3-m cell with a suspected murderer. "I felt so alone, so scared, as if I were already condemned to spend my life here," he recalls. "I wouldn't let myself think about my wife or my daughter. I didn't want even the thought of them to enter this place."

Transferred to the isolation ward after three days, he was already thinking like a prisoner. "I noticed that nothing they gave us could be used as a weapon. The dishes and spoons were plastic. The bed sheet was too flimsy to hang yourself. When we took exercise, it was in an area open to the wind, but there were bars overhead. The place was full of excrement from the dogs that barked all night and kept me awake until 5."

At his trial, Armanini admitted to shaking down businessmen on behalf

of the Socialist Party. "I never thought of it as illegal," he says. Now free, pending an appeal, he says he is frequently accosted on the street and called a thief, "I just want back the life I had," he says. Trapped in a nightmare he cannot escape, he yearns for a dream that cannot be.

Mark the statements as True (T) or False (F).

- _____ 1. Armanini was arrested on May 19, 1992.
- _____ 2. It can be inferred that kidnapping is quite common in Italy.
- _____ 3. Armanini was wearing a dark suit when he was arrested.
- _____ 4. He expected to be put into San Vittore prison.
- _____ 5. He was treated kindly and with tolerance in prison.
- _____ 6. More than 2,500 people have been arrested in Operation Clean Hands.
- _____ 7. Armanini thought about escaping from San Vittore after spending 41 days there.
- _____ 8. He constantly thought about his family while in prison.
- _____ 9. The thought of committing suicide may have crossed his mind while in prison.
- _____ 10. Armanini supported the Socialist Party.

POLLUTION (1)

Pollution has already become an international problem. Even countries with little industry have reason to be alarmed by the appalling situation. Industries and individuals dump waste materials into rivers, oceans, and even local water supplies. Farmers use chemical insecticides to protect their crops, but these chemicals, which remain in the soil and water for long periods of time, also endanger many other living things. Already, many species of plant and animal life face complete destruction. Their disappearance will harm others, as the natural food supply is reduced. This chain of events may ultimately result in a serious imbalance in nature which could endanger all living creatures, including man.

Thus, all nations should make an attempt to stop pollution. At the present time, it seems more likely that man's future will be determined by his success or failure in preserving a healthy environment than by a worldwide famine, disease or war.

Mark the best choice.

1. Line 8, 'Their disappearance' refers to the disappearance of _____.
 a) chemical insecticides c) natural food supply
 b) soil and clean water d) plant and animal life
2. Chemical insecticides used by farmers _____.
 a) are harmful for the crops c) are dangerous for many living things
 b) remain in the soil for a short time d) protect many species of animal life
3. The balance of nature will be affected negatively by _____.
 a) the destruction of some plants and animals
 b) dangerous living things
 c) the crops protected by the environment
 d) many species of plant and animal life
4. Which of the following is the least likely to determine mankind's future?
 a) His success in solving the pollution problem.
 b) A worldwide disaster.
 c) His ability to preserve a healthy environment.
 d) The attempts to stop pollution.

RECYCLING WASTE

The amount of garbage produced each day is growing at an alarming rate. Many big cities all over the world face a crisis because they are running out of space to dump wastes.

One of the solutions to this problem is recycling, that is, reusing materials. Years ago, milk bottles, beer bottles, and soft drink bottles were reused repeatedly; and many drink companies offered deposits for their bottles to encourage the public to return them. With the increasing use of inexpensive tin cans and plastic containers, however, glass returnables became less and less popular despite the slight effort that was required to return them.

10

When waste disposal became a problem, interest in recycling was revived. Companies began to promote their returnable bottles (which had never completely disappeared from the market) once again. In addition, a new 'recycling industry' sprang up, and the term 'recycling' took on a new meaning: it meant not only reusing a finished product such as a bottle but also breaking down glass bottles and paper products from the old. Recycling centers, where people can bring their empty bottles and old papers, have been set up in both small and large towns in many industrialised countries.

15

Mark the best choice.

1. Line 12, 'revived' means _____.
 a) rejected b) removed c) renewed d) reported
2. Glass bottles became less popular _____.
 a) due to the possibility of using them repeatedly
 b) when companies offered to pay deposits for them
 c) although it was difficult to return them
 d) because cheap tin cans and plastic containers took their place
3. As a result of the recent interest in recycling, _____.
 a) companies increased the use of returnable bottles
 b) returnable bottles disappeared from the market
 c) companies introduced reusable glass bottles into the market
 d) it became difficult to find a disposal place for empty bottles
4. Which of the following is **not** included in the new concept of recycling?
 a) Breaking down used products into their raw materials.
 b) Manufacturing new products from the used ones.
 c) Producing waste materials to be used in recycling.
 d) Reusing an already finished product.

OCEANS

Nations, as well as individuals, have always used the oceans - for fishing, trade, and pleasure - with little concern for anyone else's rights. The oceans used to be large enough for everyone. As the world has grown 'smaller' through improved communications and transportation and increased population growth, the oceans have become more crowded. It is now possible for a nation to go far from its coasts to fish and trade, and each year many of the new nations develop fishing and trading fleets. Instead of the large empty ocean that once existed, it is now filled with many people who are interested in using its resources. This results in strong competition among nations. Since each nation has different needs and aims, problems eventually arise.

Nations are beginning to realize that laws must be established to protect the resources in the oceans - its fish and animals, its plant life, and its minerals. However, due to the long practice of free use of the oceans, it is difficult for man to accept the need for these laws.

Mark the best choice.

1. The oceans _____.
 - a) used to be more crowded than they are now
 - b) have always been used for fishing and trade
 - c) have always caused problems among nations
 - d) affected the improvements in communications and transportation
2. The increasing interest in the resources of the oceans has led to _____.
 - a) an increase in the needs of nations
 - b) a rise in population growth
 - c) the development of new nations
 - d) problems among nations
3. Man has to establish laws _____.
 - a) to use the oceans' resources freely
 - b) not to harm the oceans' resources
 - c) to start competition among nations
 - d) not to serve the varying needs of nations
4. Which of the following is true?
 - a) The laws made to protect oceans' resources have been ineffective.
 - b) Many nations develop new fishing and trading fleets because the world has grown smaller.
 - c) It will be difficult for man to accept the laws on the use of the oceans' resources.
 - d) Nations must realize that they can use the oceans' resources.

SURGERY

- In early years of this century there was little specialization in surgery, i.e. cutting into a part of the body. A good surgeon was capable of performing almost every operation that had been devised up to that time. Today, the situation is different. Operations that were
- 5 not even dreamed of fifty years ago are now being carried out. The heart can be safely opened and its valves repaired. Clogged blood vessels can be cleaned out, and broken ones mended or replaced. A lung, the whole stomach, or even part of the brain can be removed and still allow the patient to live a comfortable and satisfactory life.
- 10 However, not every surgeon wants to, or is qualified to carry out every type of modern operation.

- The boundaries of surgery have widened remarkably in this century. Its safety has increased too. Deaths from most operations are about 23% of what they were in 1910 and surgery has extended in
- 15 many directions, for example to certain types of birth defects in newborn babies and, at the other end of the scale, to life-saving operations for old people. The hospital stay after surgery has been shortened to as little as a week for most major operations. Most patients are out of bed the day after an operation and may be back at
- 20 work in two or three weeks.

Mark the best choice.

1. Line 6, 'Clogged' means _____.
a) replaced b) broken c) removed d) blocked
2. Line 14, 'they' refers to _____.
a) the boundaries of surgery
b) deaths after operations
c) directions in operations
d) most modern operations
3. Surgeons in the early years of this century _____.
a) could perform every operation known today
b) were less specialized than the modern ones
c) had to specialize more than the modern ones
d) were able to carry out heart operations

4. The second paragraph is mainly about_____.
- a) the improvements in modern surgery
 - b) the importance of hospital stay after surgery
 - c) the percentage of operations in this century
 - d) the operations of the past and today
5. Which of the following is true?
- a) In modern surgery all types of operations can be carried out by any surgeon.
 - b) Open heart surgery has been possible since the decrease in deaths from operations.
 - c) Even the removal of a major organ doesn't prevent the patient from leading a healthy life today.
 - d) Today only one fourth of all patients who have operations recover.

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ULTRASONICS

Some of the world's most interesting and useful sounds cannot be heard at all. Ultrasonics - the 'too-high-to-hear sounds' - can be used to drill, cut weld, clean, and inspect for cracks and flaws. Like all sounds, they travel in waves through the air or any other medium, but they have a far higher frequency than the sounds we hear.

Human ears can detect sound waves that vibrate from 20 to 20,000 times per second. Bats can hear up to 50,000 vibrations per second. But when scientists talk about ultrasonics they can mean billions of vibrations per second.

Special vibrators produce these high-frequency sounds. One, the transducer, is made by sandwiching a thin slice of quartz crystal between two metal plates and passing an electric current through it. When this happens, the crystal expands and contracts by a tiny amount - but enough to generate the pressure waves needed. Ordinary sound waves spread in all directions, but because of their high frequency, ultrasonics can be more easily directed into a beam and made to do useful work.

They can be used to detect invisible cracks in metal because the sound waves travel at a different speed through the crack than through the metal. Dishes and clothes can be washed with them because of the pulsations they set up in liquid.

DESERT PLANTS

Only specialized plants can survive the climate of a desert because deserts are regions with very little rainfall. The entire yearly rainfall occurs during a few days or weeks in spring. For the remaining ten or eleven months of the year, desert plants must survive without rain.

5 There are two types of desert plants: annuals and perennials. Desert annuals, such as grasses and flowers, survive from one year to the next by existing through the long, hot, dry season in the form of seeds. These seeds remain inactive if the right amount of rain does not fall. If
10 there isn't enough rain, they wait until the following year or even the next. Another factor that helps these plants to survive is the fact that their life cycles are short. If they get the right amount of rainfall, the seeds grow into plants which flower, then form new seeds and finally die, all in just a few days or weeks. By the time the water from the spring rains disappears - just a few weeks after it falls - the desert
15 annuals don't need any .

Desert perennials also have special characteristics which enable them to survive as plants for several years. Nearly all perennials have a well-developed root system below ground (which enables the plant to absorb the maximum amount of water possible in a short time) and
20 a comparatively small shoot system, that is, leaves and branches (which limits water loss).

Another characteristic of many desert perennials is their deciduous habit; that is, after the rainy season they lose their leaves to prepare for the long, dry season, just as trees in wetter climates lose theirs to
25 prepare for the winter. This reduces their water loss during the dry season to a minimum. Then, in the next rainy season they come fully alive once more, and grow new branches, leaves and flowers, just as the desert annuals do.

Mark the best choice.

1. Line 15, 'any' refers to _____.
a) time b) seeds c) water d) plants¹
2. Line 24, 'theirs' refers to _____.
a) the trees in wetter climates
b) the perennials which have a deciduous habit
c) the new branches, leaves and flowers of annuals
d) the leaves of trees in wetter climates

AMARANTH

Amaranth is a kind of high-protein grain. It may easily be grown in many areas which are unable to support other crops.

Agriculturalists think it is a promising crop which may help feed a hungry population in the future.

5 It is not a new idea to grow amaranth as a foodstuff. In Mexico during the sixteenth century, the Aztecs cultivated it. The plant was an important part of their diet. It has been shown that the Aztecs harvested close to 6,000 metric tons of the grain each year. However, when Cortes and his Spanish army invaded Mexico, they
10 destroyed the crop completely. Today only a few wild and uncultivated kinds of amaranth exist, and it is rarely used as food in Mexico.

It has been discovered that amaranth is a highly nutritious food. The plant's seed is high in protein, and it contains an important
15 amino acid called lysine. Amino acids are organic compounds that are the building blocks of protein. Lysine is an essential amino acid that is missing in wheat, rice, and corn. The leaves of some varieties compare in taste and nutritional value with spinach and other vegetable greens.

20 Amaranth can be ground into flour and made into baked foods. Bread made from amaranth flour is heavy and very compact when compared with the light and airy bread common in North America. The flour can also be used for cakes, cookies, and crackers, as well as high-protein breakfast cereals and snack foods.

25 It is true that breeding a wild plant into a major food crop such as wheat requires much research time. Agriculturalists know that it has taken hundreds of years of breeding different varieties of corn to get the better kinds we have today. They have to go through the same time-consuming stages to grow amaranth as a crop. Presently
30 there are several problems. Because it is a wild plant, it is hard to predict the date when the crop will be ready to be harvested. It is also impossible to know the expected height of the individual plants or how much a given amount of seed can produce. It is important, for economic reasons, to breed a plant of standard height
35 and one that can be harvested at a specific time each year.

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DREAMS

Dreams have always held a universal attraction. A lot has been said and written about them. Although most dreams happen spontaneously, dream activity may be stimulated by external influences. 'Suffocation' dreams are connected with the breathing
5 difficulties of a heavy cold, for instance. Internal disorders such as indigestion can cause vivid dreams, and dreams of racing fire-engines may be caused by the ringing of an alarm bell.

Experiments have been carried out to investigate the connection between deliberately inflicted pain and dreaming. For example, a
10 sleeper hurt slightly with a pin perhaps dreams of fighting and receiving a serious wound. Although the dream is stimulated by the physical discomfort, the actual events of the dream depend on the associations of the discomfort in the mind of the sleeper.

A dreamer's eyes often move rapidly from side to side. Since
15 people born blind do not dream visually and do not show this eye activity, it is thought that the dreamer may be scanning the scene in his dream. A certain amount of dreaming seems to be a human requirement - if a sleeper is woken up every time his eyes begin to move fast, effectively depriving him of his dreams, he will make more
20 eye movements the following night.

Of the many theories of dreams, Freud's is probably the best known. According to Freud, in our dreams, we return to the modes of thought characteristic of early childhood. Our thinking becomes pictorial and non-logical and expresses ideas and wishes hidden deep
25 in our minds.

Mark the best choice.

1. Line 9, 'inflicted' means_____.
a) caused . c) satisfied /
b) noticed d) motivated
2. The first paragraph is mainly about_____.
a) the probable causes of dreams
b) the effects of dreams on the mind
c) some experiments on dreaming
d) the strangeness of our dreams

3. If a person is hurt slightly while sleeping, _____.
 - a) he may have spontaneous dreams
 - b) his dreams are shaped by the effects of the pain on the mind
 - c) the pain will immediately stop the dream activity
 - d) no connection can be observed between the pain and his dreams
4. People who are able to see _____.
 - a) dream in exactly the same way as blind people
 - b) need dreams more than blind people
 - c) have eye movements during dreaming
 - d) require different reasons for dreaming
5. The fourth paragraph is mainly about _____.
 - a) the consequences of our childhood dreams
 - b) Freud and the dreams we had in early childhood
 - c) different theories on dreaming
 - d) the Freudian explanation of dreams
6. Which of the following statements is true?
 - a) Our hidden wishes prevent dream activity.
 - b) Humans need a certain amount of dreaming.
 - c) Dreams cannot be caused by physical discomfort.
 - d) The ideas of the sleeper have no influence on his dreams.

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POLLUTION (2)

- 5 Ecology means the study of the inter-relationships of plants, animals, human beings and their environments. Environment is everything that affects the quality of your life: the air you breathe, the water you drink or swim in, your flat or house, the number of people, the traffic, the noise and streets, shops, parks, countryside, seaside, factories, farming, mining.-

The different kinds of pollution are all connected. What happens to the air affects the land. What happens to the land affects the water. And what happens to the water affects the air.
- 10 Man has been polluting the earth for a very long time. At first, when the environment got dirty, people moved to a cleaner place, but the rise in population and the developing industry have changed that, and we can't do it any more. There are new kinds of waste, such as plastics, and new chemicals which are very hard to destroy. So, the

15 earth is becoming dirtier.

Every year about 150,000,000 tons of dirt, sprays and gases go into the air over the USA. Air pollution damages paint and metal, makes our clothes dirty, stops the growth of plants and can also cause many diseases and death. There are two main causes of air pollution: fumes from cars, trucks and buses, and fumes from industry. In large cities, cars alone are responsible for about 80 per cent of the air pollution. Gasoline engines give off a gas called carbon monoxide, which has no colour or smell. This gas will make you sleepy, give you a headache and can finally kill you. Scientists say that breathing the air of New York is like smoking forty cigarettes a day.

Mark the best choice.

1. Line 13, 'do it' refers to_____.

- a) pollute the earth c) move to another place which is cleaner
- b) develop industry d) increase the population

2. Line 22, 'which' refers to_____.

- a) gasoline b) carbon monoxide c) gasoline engine d) air pollution

3. Ecology means the study of the relationship_____.

- a) of animals to plants
- b) of plants and animals to man
- c) between all living things and their environment
- d) of plants and animals to institutions

4. The problem with new kinds of waste and chemicals is that they_____.

- a) are very hard to destroy c) affect industry
- b) are becoming dirtier <j) have developed industry

5. 80% of the air pollution in big cities comes from_____.

- a) industry and cars b) industry c) dirt, sprays and gases d) cars

6. Which of the following statements is true?

- a) Fumes from cars affect the weather.
- b) People in New York smoke about 40 cigarettes a day.
- c) Carbon monoxide can kill people.
- d) There is air pollution only in large towns.

THE ELECTRIC EEL

There are a number of different kinds of electric fish living in the various rivers and oceans of the world. They can generate electricity up to several hundred volts. The most powerful electric fish are the electric catfish and the electric eel.

- 5 The electric eel lives in South America. Its special organs can generate a very powerful electric current, which is enough to light twelve light bulbs. The eel uses this electric charge to kill its prey - mainly fish and frogs - and to keep its enemies away.

- 10 The electric eel manufactures the electric current in its tail, where thousands of cells are linked together and form a kind of 'charging' machine. The electric shock from the eel lasts only a fraction of a second.

- 15 Electric eels can sometimes be nearly two meters long. As they move through the water, they send out weak electrical charges and these create an electric field around them. These charges help them to locate their prey when some other sea animals enter the electrical field and cause a change in the current impulses.

Mark the best choice.

1. Line 15, 'them' refers to _____.
 - a) weak electric charges
 - b) the electric eels
 - c) their prey
 - d) other sea animals

2. Electric eels use their electric current to kill their prey and also _____.
 - a) the electric shock from the eel lasts only a short time
 - b) to form a kind of 'charging' machine
 - c) fish and frogs
 - d) to warn or frighten their enemies

3. When some other sea animals enter the electric field of the eels, _____.
 - a) they send out weak electrical charges
 - b) they are killed
 - c) they generate electricity
 - d) there is a change in the current impulses

SMOKING

There is some disagreement on whether Sir Walter Raleigh, the 16th century adventurer and explorer, introduced tobacco into Europe, or only popularised the habit of smoking. Either way, he was not aware of the harm he was doing to future generations.

5 Smoking, of course, was not always as popular as it is today. It was mostly men who smoked, and it was considered a slightly dirty and unpleasant habit. After dinner, the men would 'go' to the 'smoking room' in their 'smoking jackets' before lighting their cigars and pipes. Cigarettes are relatively recent and they have become more available
10 (as with so many other things) by the arrival of mass production. By the First World War, smoking had left the 'smoking room' and had joined the people. This popularity of the cigarette continued in the inter-war years. By that time, the relaxing qualities of cigarettes had been known and to this Hollywood added another attraction. With a
15 cigarette dangling from your lips, you too could be like Humphrey Bogart, or James Cagney, or Betty Grable - or - whoever your idea of the attractive film star was. It is funny that the act of smoking dried leaves could be considered to make you look better but so it was . The young people in the 1930's and 1940's first took up smoking as a mass
20 habit. This was the period when the pressures of living first began to be so great that people needed the relaxing qualities of nicotine.

It was not until much more recently, however, - within the last ten or twenty years - that we have realised what has happened to us. We no longer smoke for the purpose of relaxation, or after-dinner social
25 enjoyment; today's smoker lights a cigarette over his breakfast coffee, continues throughout the day, and puts out his last cigarette just before he turns off the light at night. He smokes as if his life depends on it - but he knows that his life may depend on his not smoking. The connections between lung cancer, rapidly becoming one of the largest
30 killers in modern society, and smoking have been demonstrated, but we still cannot give up. Governments are beginning to take action against smoking - but without too much interest, for tobacco is one of the most profitable sources of tax. The British Government took*the enormous step of ordering the cigarette manufacturers to print a
35 warning that "Smoking Can Damage Your Health" on the side of all cigarette packets. The only effect of this is that smokers need a few extra cigarettes to further relax their terrified nerves.

Do you smoke? Can you run for the bus without being short of breath? Can you smell the flowers in spring? Is your house full of

40 finished and half-finished cigarettes? Do you spend the first ten minutes of every morning coughing?

Look, I've got an idea. Let's give up smoking. Well, anyway... let's give it up tomorrow.

Oh, Walter Raleigh! What have you done to us?

Mark the best choice.

1. In the past_____.

- a) smoking was less popular because of Raleigh
- b) smoking was more popular than it is now
- c) not many women smoked
- d) only dirty men smoked

2. Cigarettes gained popularity because of_____.

- a) mass production
- b) their relaxing qualities
- c) the attraction Hollywood added
- d) all of the above

3. Line 18, 'so it was' refers to_____.

- a) it was funny to consider smoking to make you look better
- b) the act of smoking was funny but this was considered to be better
- c) dried leaves could be smoked and this was funny
- d) smoking was considered to make you look better

4. The young people of the 1930's and 1940's_____.

- a) became smokers when they grew up
- b) needed the relaxing qualities of nicotine
- c) became smokers to look like film stars
- d) thought the act of smoking was funny

5. Nowadays, smokers_____.

- a) don't realise how dangerous smoking is
- b) smoke for social enjoyment and relaxation
- c) have realised the dangers of smoking and are giving it up
- d) know they might die if they continue smoking

6. The step taken by the British Government_____.
- a) made people smoke a little more
 - b) helped decrease the number of smokers
 - c) was not interesting for cigarette manufacturers
 - d) caused a decrease in the tax income
7. This passage has been written_____.
- a) as an attempt to make people stop smoking
 - b) as an attempt to explain why smoking is not really dangerous
 - c) to give a serious history of smoking
 - d) to point out all the dangers of smoking

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DDT

It is clear that some chemicals can damage the health of animals and humans. However, this is not the only problem that can be caused by the careless use of chemicals. Chemicals can also disturb the ecological balance of the environment. If the ecological balance is
5 disturbed, the consequences can be extremely serious.

The history of DDT illustrates this problem. DDT, a chemical which kills insects, at first seemed to be a perfect answer to many problems. It would control insects that caused dangerous diseases, as well as insects that caused billions of dollars of damage to crops every
10 year. Governments permitted and even encouraged the use of DDT. Farmers in many countries began to spray it on their crops. The immediate results were good: damage to crops went down, and profits went up. However, the chemical had effects which the scientists had not predicted. First, it also killed insects which were the natural
15 enemies of the harmful insects and which were, therefore, beneficial to farmers. Second, and perhaps worse, DDT did not kill every harmful insect. A few insects, which had natural resistance to the chemical, survived and multiplied. In a few years, there were large numbers of insects which were not affected by DDT, and there were
20 fewer insects which could act as natural controls on these new* 'super-insects'. Finally, it became clear that DDT was not solving the insect problem. In fact, it was making the problem worse. It then became necessary to find a second cure for the effects of the first!

Mark the best choice.

1. Line 6, this problem' refers to_____.
 - a) chemicals damaging the health of animals and humans
 - b) the careless use of chemicals
 - c) chemicals' disturbing the ecological balance of the environment
 - d) the extremely serious consequences
2. DDT was first viewed favourably because_____.
 - a) it helped control certain diseases and crop damage
 - b) all its effects were predictable
 - c) its use was encouraged by governments
 - d) it did not harm humans or animals
3. Scientists couldn't realise that_____.
 - a) the use of DDT would increase the agricultural profits
 - b) DDT would also kill certain insects which were useful
 - c) the type of insects which DDT destroyed would later grow a resistance
 - d) the immediate results of DDT usage would be good
4. If a farmer used DDT today, in five years' time_____.
 - a) he would have no problems with harmful insects
 - b) his situation would not be different
 - c) insects might create an even greater problem for him
 - d) his profits would eventually rise to unexpected levels

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DRY FOOD

Food contains proteins, carbohydrates, fats and vitamins and these are vital to life. Food must be fresh when we eat it. If it is bad, it can make us ill. There are two main agents which turn food bad; fungi (such as yeast and various moulds) and bacteria. These are

5 micro-organisms which cannot make their own food. So they live and grow on our food. Moulds, for example, usually grow on bread. Yeast can spoil fresh food but it also has some very useful properties. For hundreds of years people have used it in the making of bread and wine.

- 10 In order to grow and multiply, all these micro-organisms need food, water, warmth and, in some cases, air. The methods we use to preserve our food make conditions dry and very cold; unsuitable for the growth and multiplication of micro-organisms.

15 The great distances which often separate the producer of food from
the consumer in the 20th century make effective food preservation
vital. But most preservation processes destroy many important
vitamins and proteins. One of the tasks of food technologists today is
20 to find ways of preserving food without losing these important t
substances .

In hot countries people dry food simply by the heat of the sun. In
this way, it is possible to reduce the moisture level in most fruits to
between 5% and 15%. This level is low enough to stop the growth of
micro-organisms. Some other kinds of food go through a process
25 called dehydration . In this process, hot and dry air passes over the
food and absorbs as much moisture as possible. This method is usually
used for drying tea and coffee. Another way of preserving food is
putting it into cans or bottles and heating it up to a temperature of
100°C or 120°C for about ten minutes because high temperatures kill
30 micro-organisms in food.

There are several other ways of preserving food. One of them is
freezing the food to a temperature between -30°C and -40°C. Some
people still use two very old methods: salting and smoking. Salt stops
the growth of micro-organisms and smoking removes some of the
35 moisture in the food.

Certain acids and chemicals are useful preservers because they stop
the action of micro-organisms. For example, we can use vinegar, an
acidic liquid, to preserve eggs, onions and some vegetables. One of
the newest methods is radiation. It is very effective because it kills not
40 only the micro-organisms but also their spores (small cells which
fungi or other micro-organisms produce in order to reproduce the
organism). In this way , it stops their reproduction.

Mark the best choice.

- 1 .Line 8, 'it' refers to _____.
a) fresh food b) yeast c) bread d) mould
2. Lines 19-20, 'these important substances' refers to _____.
a) ways of preserving food
b) one of the tasks of food technologists
c) vitamins and proteins
d) most preserving methods
3. Line 28, 'if refers to _____.
a) food b) tea c) coffee ' d) this method

BLUE-JEANS

It has been more than 130 years since Levi Strauss invented blue-jeans and they are still very popular today. Farmers and workers wear them to work in; children wear them to play in. Others wear them because they are comfortable. Before the 1950's, blue-jeans were popular only in the West and Southwest. Today, almost everyone wears them. Americans buy about 500 million pairs of jeans a year. That's more than two pairs per person. Of course, blue-jeans are also popular in other parts of the world. In these areas, people buy about 200 million pairs of jeans.

Levi Strauss and Company makes about one-third of all the jeans in the United States and about one-seventh of those in other countries. In fact, for a long time, people used the word Levi's¹ as a synonym for blue-jeans. That's because 'Levi's' were the first jeans. The inventor was a German immigrant named Levi Strauss.

Levi Strauss left Germany in 1848, when he was a young man. He came to New York City to be near his two brothers. For two years, he worked as a salesman. He worked hard, but he didn't earn much money. Then, he decided to go to San Francisco. Gold was discovered in California in 1848, so many people left their homes and jobs in the east and they moved to mining camps in California, hoping to find gold and become rich. Some of them did, but many did not.

When Levi went West, he brought some canvas (a very strong cloth) with him. He wanted to sell it to the miners for making tents. His canvas was the wrong kind for tents, so nobody bought it, but Levi found another use for it. A miner told Levi that he needed a good, strong pair of pants because digging for gold was hard work. When Levi heard that, he made a pair of canvas pants for the miner. The miner paid Levi 6 dollars in gold dust and told the other miners about 'those pants of Levi's'. Levi quickly sold a lot of pants, so he wrote to his brothers in New York and told them to send him more canvas, but they sent him some heavy cotton cloth called 'denim', much of which came from Genes (the French name for the city of Genoa, Italy). Levi changed the spelling of Genes to 'jeans'. He called his new pants blue-jeans.

In 1853, Levi and his brothers opened a small clothing business in San Francisco. Today they make and sell about 250 million pieces of clothing a year - from women's clothes to men's suits, and of course, blue-jeans.

THE REBIRTH OF THE FEMINIST MOVEMENT

There is a popular belief that the feminist movement, which became very popular and powerful in the early 1970's, caused women to be dissatisfied with their traditional roles as wives, mothers, and homemakers. These women then began to find more satisfying work outside the home. This, however, is not an accurate picture of the connection between working women and the feminist movement. Although feminism, or women's liberation, has been an important factor in the changes which have occurred in the role of women since 1970, it did not begin these changes.

There are two primary causes for the increase in the number of American women who work outside the home. First, between the end of World War II and the early 1960's, the population of the country was growing rapidly, and this growth created a need for more teachers, more medical assistants and nurses, more social workers, more secretaries, and more store assistants. Therefore, a large number of jobs became available in service industries. These types of occupations had two important features in common: (1) they were jobs which were already traditionally held by women, and (2) in comparison with jobs which were traditionally held by men, they were poorly paid. They were, therefore, jobs that did not usually attract men.

The availability of new jobs that men did not want, however, is not by itself an adequate explanation for the rise in the number of working women. It does not answer the question of why women wanted to work. The second cause of the increase in the number of working women is the economic pressures which forced married women, especially young married women, to look for work outside the home. In the 1960's, people in the U.S. began to expect a higher standard of living; they wanted the expensive consumer goods that U.S. industry was producing. However, often the husband's earnings did not permit the family to buy the new kitchen appliances, the color television, the new clothes, the furniture, and the second automobile which seemed so necessary. It became necessary for wives to increase the family's income, and so women began to take the service jobs that were becoming available.

It is clear, therefore, that the increase in the number of working women began before the feminist movement was reborn in the late 1960's. In fact, many experts argue that the increase created the modern feminist movement. Working women were the cause, not the

40 result, of women's liberation. According to these experts, economic conditions and the experiences of these working women were the main factors in the development of the feminist movement in the 1970's.

A. Mark the best choice.

1. Line 9, 'it' refers to ____.

- a) an important factor
- b) the role of women
- c) an accurate picture
- d) feminism

2. Line 24, 'It' refers to _

- a) the availability of jobs in service industries
- b) the availability of new jobs that men did not want
- c) the rise in the number of working women
- d) an adequate explanation .

Women wanted to work outside the home because_____.

- a) housework did not satisfy them
- b) they wanted a better standard of living
- c) the new household appliances gave them a lot of free time
- d) finding a new job was very easy

What is the connection between the feminist movement and the increase in the number of working women in the 1960's?

- a) These two developments have no connection.
- b) The feminist movement made women unhappy with their traditional roles as wives and mothers. As a result, more women took employment outside the home.
- c) There was a rapid increase in the number of working women, and this increase led to the reappearance of feminism.
- d) The rising cost of living caused many men to force their wives to think more seriously about careers.

COOPERATIVE EDUCATION

5 'Cooperative education' is a significant innovation in university education programs and it has found increasing favor in recent years. Cooperative education makes full-time work in industry, business, or government a part of the program. Thus, by alternating semesters of study with work related to that study, 'co-op' students receive valuable job training while earning money for tuition. The program makes advanced schooling more meaningful and realistic.

10 Universities like the idea of cooperative education, not only for its educational value but also because such programs aid them in expanding enrollments. With a large number of students spending time away from school working, universities can accept more students without increasing the number of buildings and teaching staff. The business community welcomes the well-trained employees into jobs before and after graduation.

Mark the best choice.

1. Line 2, V refers to _____.
 - a) university education c) a significant innovation
 - b) cooperative education d) education programs

2. Line 9, 'them' refers to _____.
 - a) enrollments b) educational values c) universities d) programs

3. Which of the following states the main idea of the first paragraph?
 - a) Job training in industry, business or government has always been a part of a university education program.
 - b) Students cannot afford to go to university because tuition is too high.
 - c) Cooperative education programs at universities involve full-time work in industry, business and government.
 - d) Many universities have adopted a cooperative education program because students benefit both financially and professionally from such a program.

4. Universities that make cooperative education part of their program _____.
 - a) increase the number of teaching staff to give better education
 - b) have to increase the number of buildings since they accept more students
 - c) can provide education for more students than a university without a 'co-op' program
 - d) accept students that have had training in the business community

THE EGYPTIAN PYRAMIDS

The ancient Egyptian civilization, famous for its mighty pyramids, lasted for more than 3000 years. During this time Egypt was ruled by about at least 30 dynasties, ruling families of kings or queens. The pyramids were constructed as tombs, i.e., as burial places for the Egyptian kings and their families. Originally, during the First and Second Dynasties, which lasted until about 2665 B.C., kings of Egypt constructed a type of tomb called 'the mastaba'. A mastaba looked like a low, rectangular shoebox.

The first typical pyramid was built in 2650 B.C. during the Third Dynasty. This pyramid was built for King Zoser by an architect named Imhotep as a series of giant steps or stairs. It, along with the others of its type, is called the Step Pyramid. It was really simply a pile of steps each higher and smaller than the one before. The Step Pyramid of King Zoser was different from the later pyramids because it was never covered with stone to give it a smooth surface.

Actually, it was not until the Fourth Dynasty that the most famous pyramids were built. These are located near the town of Giza, on the west bank of the River Nile, just outside the capital city of Egypt, Cairo. The largest of these pyramids is known as the Great Pyramid. It was built for King Khufu, who was called Cheops by the Greeks, and so the pyramid is sometimes called the Pyramid of Cheops. It has been estimated that 2,300,000 blocks of limestone were used to build the Great Pyramid. The blocks weigh average 2,500 kilos each, the largest stone block weighing about 15,000 kilos. The base of the pyramid covers 5.3 hectares - an area large enough to hold ten football fields. In terms of height, the pyramid used to be 147 meters high, but today the top ten meters are missing, and the entire outer limestone covering has been taken away.

Mark the best choice.

1. King Zoser's pyramid was different from others because _____.

- a) it was rectangular, like a shoe box
- b) it was built during the Fourth Dynasty
- c) it didn't have a smooth surface covered with stone
- d) it didn't have a series of huge steps or stairs

2. Line 13, 'one' refers to _____.

- a) the pyramid b) the step c) the stone d) the type

3. The Great pyramid_____.
- a) has a base ten times as large as a football field
 - b) is made up of 2,500 stones weighing 15,000 kilos each
 - c) is 147 meters high
 - d) is still covered with limestone
4. Which of the following is correct?
- a) The most famous Egyptian pyramids are called mastabas.
 - b) A Greek called Cheops built the Great Pyramid for King Khufu.
 - c) All pyramids built during the first four dynasties were similar in shape.
 - d) An architect named Imhotep built the first step pyramid.

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GHOSTS

Herr Adam is a lawyer working in Rosenheim, a small town in Bavaria, West Germany. In the summer of 1967, the telephones in his office seemed to go wrong. He called in Siemens, who had installed the phones, but they couldn't find a fault. He then called in the Post Office. They replaced the Siemens phones with official Post Office ones and put meters that showed calls being made in the office.

On 10th October, for example, forty-six calls were made in fifteen minutes from 7.42 to 7.57 a.m.! The phones were replaced by ones which had locks. There was still no improvement: between five and six hundred calls were made in one week. When he saw the bills, Mr. Adam thought that someone at the Post Office was pocketing his money! A serious row developed between him and the Post Office Accounts Department.

Then, on 20th October 1967, all the office fluorescent lights came out of their sockets and fused. They were mended by a local electrician, but exactly the same thing happened again. The German Electricity Board took over the case. Paul Brunner, Auxiliary Works Manager, arrived on 15th November 1967. The next day, instruments were installed to measure the electricity coming into the office. At the same time as light bulbs exploded and the photocopier went wrong, abnormal amounts of electricity were recorded. These were so extreme that the instruments broke down. Readings from the central supply and then from the generator nearby were normal, however.

The electricity was coming from somewhere else, but where? In the same month, a girl was cut by flying glass, lights began to swing and pictures on the walls changed places. Paul Brunner realised that this

was beyond him and handed the matter over to two of Germany's leading physicists, Dr. Karga and Dr. Zicha. They were fascinated and did their own research. They could find no answer except that there
30 was some external force that activated the electrics in the office and the telephones. They, in turn, handed the case over to parapsychologist Professor Bender and the police.

Professor Bender and the police centred their attention on the people working in the office and noticed that one office clerk in
35 particular, Anne-Marie Schneider, showed signs of stress at the time of the happenings although she wasn't aware of it. Professor Bender noticed that the strange happenings began at 7.30 a.m., the time that this girl began work, and stopped completely when she took a week's holiday. On her return, things went from bad to worse. Desk drawers
40 kept flying open and, on one occasion, a cash-box opened and the money inside fell onto the floor. The office was in chaos and everyone, including Anne-Marie, was terrified. Mr. Adam decided to ask her to leave.

From the day she left, the office returned to normal and there has
45 been no other explanation other than ghosts for all these strange happenings.

Mark the best choice.

1. Problems with telephones occurred _____.
 - a) at the Post Office
 - b) in a lawyer's office
 - c) in Siemens
 - d) at the Electricity Board
2. Line 12, 'row' probably means _____.
 - a) agreement
 - b) argument
 - c) treatment
 - d) payment
3. Mr. Adam blamed the Post Office for _____.
 - a) refusing to replace his phones
 - b) installing faulty phones in his office
 - c) locking all his office phones
 - d) sending him high telephone bills
4. Paul Brunner _____.
 - a) was hurt by flying glass and handed the case over to physicists
 - b) could not solve the problem and so gave up his investigation
 - c) received help from Dr. Karga and Dr. Zicha to do his investigation
 - d) worked with the police until the end of the problem

TRAVELLERS' TALES

Every year, a magazine called *Executive Travel* organises a competition to find the Airline of the Year. Travellers from all over the world are invited to vote for the most efficient, the most punctual, the safest and the friendliest airline. The winner in 1985 was British Airways. The competition asked travellers what they expected most from an airline, and the results were as follows:

Punctual departures and arrivals	35%
Attentive cabin staff	35%
Comfort	18%
Safety	9%
Good food and wine	3%

The competition also invited travellers to tell their most horrific stories of international travel. Replies included six hijacks, fifty-three cases of engine failure or troubles with landing, eleven lightning strikes, twenty-three bomb scares, thirteen cases of food poisoning, eleven near misses and two accidents with airport trucks.

Bad flying experiences begin on the ground, naturally. One American airline managed to double-book an entire 747, but this is nothing compared to what happened on an internal flight on a certain African airline. The flight had been overbooked three times. The local military solved the problem by insisting that all passengers should run round the plane twice, the fastest getting the seats. An overbooked flight that was going from Heathrow to America gave one traveller a bit of a shock. Dressed only in trousers, shirt and socks, he had been allowed by the stewardess to leave the aircraft to speak to a friend. He returned a few minutes later to find the 747 closed up and about to start moving - with his shoes, wallet, passport and luggage inside. Banging frantically on the door got him back inside. A similar event was experienced by a businessman on a flight from Bangladesh. Passengers were waiting for take-off when there was a sudden hysterical banging on the door. At first, the cabin crew paid no attention. The banging continued. When the door was finally opened, the pilot got in.

One frequent flier lost a certain amount of confidence when the cabin staff asked him to sit in the lavatory during take-off so that they could occupy the seats nearest the emergency exit on a flight between London and Manchester. For nervous fliers, a shocking journey was one between Gatwick and Montpellier, during which they had to watch pieces of the engine falling off. Another passenger was asked to

40 hold the aircraft door closed at take-off and landing.

Baggage is a rich source of horror stories. There was the unlucky businessman who left Chicago in minus-6 weather. He was going to an important meeting in Dallas, where the temperature was 32-plus. Unfortunately, his suitcase had gone to Los Angeles, where it spent
45 the next two days. The customers he was trying to impress were more than a little surprised to see him going round in a thick suit, heavy overcoat and fur hat.

Mark the best choice.

1. The competition mentioned in the text was organised by _____.
 - a) the Airline of the year
 - b) *Executive Travel*
 - c) British Airways
 - d) travellers all over the world
2. Competition results showed that _____.
 - a) the majority thought comfort was most important
 - b) two thirds were interested in good food and wine
 - c) less than ten per cent considered safety important
 - d) none cited punctuality as an important point
3. The stories told by travellers included _____.
 - a) more hijacks than cases of engine failure
 - b) no problems with food served on the planes
 - c) only disasters which took place on the ground
 - d) a number of accidents with airport trucks
4. Line 18, 'this' refers to _____.
 - a) one American airline
 - b) double-booking the flight
 - c) an experience on the ground
 - d) management of an airline
5. On one occasion in Africa, the passengers had to run round the plane _____.
 - a) to get seats
 - b) because they were in trouble with the local military
 - c) to buy tickets for an internal flight
 - d) because they were late

JOB CENTRE LEAFLET

Thousands of jobs come into our Job Centres and Employment Offices every week, but they get snapped up quickly. So, although we shall do all we can to help you, it's important for you to do all you can to help yourself. This leaflet tells you how.

1 Registered for work

If you are registered for work, you will consider available jobs for the

You must also register for work at the Job Centre in order to claim unemployment pay. But you actually apply for pay at the local Unemployment Office.

2 Getting a job

Jobs that come in are noted on cards and displayed in the office window as soon as possible. You can call in at any time to look at the jobs displayed.

Half the people who find jobs through Job Centres or Employment Offices find them in this way.

The receptionist is here to help you, so if you see a job that looks right for you, tell the receptionist, giving the reference number on the card.

3 If you want further help with finding a job

If you want more help or advice, don't forget that's what we're here for. Our Employment Advisers can help you with things like:

- thinking about the different sorts of jobs you could do - and which are best for you

- jobs available locally or elsewhere

- training for a new job

- your suitability for a training course, during which you get an allowance

- loans to help you look for, and move to, work in other fields

Even though you have a clear idea of the sort of job and pay you want, you may find that something different will suit you quite well. Keep this in mind when you're talking with the Employment Adviser and don't stick to one job only.

4 If you don't find a job on your first visit

Come into our office as often as you can to look at the jobs on display here.

Good vacancies are coming in all the time, but they do go quickly. Don't rely on being told about them just because you've been registered for employment.

If you can't get to the office every day easily, come in whenever you can - and enquire by telephone as often as you like.

It'll help you to find a job faster if you keep in touch.

LANZAROTE

People usually regard the presence of even a single volcano in their particular geographical region as a cause of great concern, but the inhabitants of the Island of Lanzarote live in the shadows of over two hundred volcanoes, most of which now lie sleeping. Lanzarote, one of the Canary Islands belonging to Spain, is located about eighty miles off the western coast of Morocco in Africa.

The inhabitants of Lanzarote are known for their courage and adaptability. Their island is an arid, treeless land, but its agricultural output is impressive. Because there is very little rain, farmers use volcanic cinder to capture and retain wetness in the earth. They even dare to plant crops in the desert sand that is a condition of their daily existence. An unusual land, Lanzarote proves man's ability to overcome the obstacles in his natural environment.

Mark the best choice.

1. What is the present condition of volcanoes on Lanzarote?
 - a) Most of the volcanoes present a threat to the inhabitants of the island.
 - b) A great many volcanoes are still erupting.
 - c) The presence of volcanoes makes agriculture almost impossible on the island.
 - d) The majority of volcanoes are inactive.
2. Which of the following is not true for Lanzarote or its inhabitants?
 - a) Lanzarote's inhabitants are brave and flexible people.
 - b) Lanzarote is a dry land without trees.
 - c) Lanzarote is located off the southern coast of Africa.
 - d) Lanzarote's inhabitants grow crops in the desert to survive.

SPEED LIMIT

According to a recent survey, a large majority of Americans are in favor of retaining the present 55-mile-an-hour speed limit.' This speed limit was imposed in 1973 when fuel shortages became crucial.

5 Seventy-five per cent of the persons surveyed think that the law is a good one. They point to the decrease in the highway death rate or to the saving of fuel as reasons for their opinion. Easterners and older people, rather than young adults, are more likely to argue for retention of the law.

10 Only twenty-three per cent of the people surveyed favor a higher speed limit for trucks. Their view is supported by the trucking industry, which contends that truck engines work more efficiently at higher speeds, and that trucks traveling at higher speeds reach markets more quickly, thereby saving consumers money. However, some of the persons polled argue that trucks on certain highways are already
15 involved in a disproportionate number of fatal accidents.

Mark the best choice.

1. The original reason for the 55-mile-per-hour speed limit was that _____.
 - a) large trucks were causing many accidents
 - b) a majority of the people voted for it
 - c) a fuel shortage was developing
 - d) there was a sudden increase in highway death rate
2. _____ do not seem to argue for keeping the speed limit.

a) 23% of the people	c) Young people
b) Old people	d) 75 % of the people
3. Truckers want a higher speed limit for trucks _____.
 - a) although few trucks are involved in accidents
 - b) as trucks cannot save money by using little fuel
 - c) only if they do not transport consumer goods
 - d) because trucks run better at higher speeds
4. To contend (line 11) means to _____.

a) be satisfied	b) claim	c) refuse	d) be doubtful
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THE TORNADO

One of the most feared occurrences in nature is the tornado. The area most frequently the target of this violent windstorm is the Great Plains, the region extending from the Rockies to the Mississippi, and from Canada down through Texas. When warm, moist air meets with cooler, drier air at low levels, a tornado often occurs. Prior to the formation of the familiar funnel-shaped cloud, the sky is very clear. Then, a black line suddenly appears. As this black area moves in, the fast wind becomes hot and moist and a deep stillness encircles the landscape. Because the air pressure drops steadily during a tornado, breathing becomes difficult. Insects fall to the ground, unable to balance themselves in flight. Suddenly, a black funnel resembling a giant whip dips down out of the sky, destroying whatever it touches, and then retreats. Although a tornado usually destroys property rather than lives, an average of 120 people die yearly as a result of these violent storms. It is obvious why the tornado is feared throughout the Great Plains.

Mark the best choice.

1. Before a tornado occurs _____.
 - a) there are funnel-shaped clouds in the sky
 - b) the sky is very dark
 - c) there are cold freezing winds
 - d) the sky is cloudless
2. During a tornado, insects _____.
 - a) are unable to fly
 - b) die immediately due to atmospheric pressure
 - c) breathe at an increasing rate
 - d) are seldom affected by the heat and moisture
3. As a tornado occurs _____.
 - a) hot, dry air encounters cold, damp air
 - b) air pressure gets progressively lower
 - c) the black funnel in the sky disappears
 - d) breathing gets easier
4. Which of the following statements is true?
 - a) A black line in the sky is a sign that the tornado is over.
 - b) A tornado is most destructive before the funnel-shaped cloud is formed.
 - c) The wind is fast, hot and humid during a tornado.
 - d) Tornadoes are more dangerous for people than for property.

TRAVEL INSURANCE

On their way to southern Spain last summer, George and Jean Glover stopped outside the city of Seville for a lunch-time picnic. They left their car by the road and walked down to the cool waters of a river for a very pleasant meal. When they returned to their car, they
5 were horrified to discover that the back window had been forced and smashed. It took a while to sort out what had gone, mostly small things like their camera, tape player and tapes, a few clothes lying on the back seat - fortunately, they hadn't bothered with the suitcases.

It suddenly dawned on Jean that she had left her handbag in the car,
10 containing their passports, travellers' cheques, cash, ferry tickets, car keys and front-door keys. "It was appalling. How could I have been so stupid? In London, I'd never have left my handbag in the car," recalls Jean.

Initially, they both felt like driving back to the ferry and going
15 home. But they knew they had to report the theft to the police. And they had to call their motor insurance company to arrange for a new back window. The travel insurance company, which ran a 24-hour emergency assistance service, advised them to call a neighbour, who had a key for their house, to ask her to get the locks changed. They
20 were also advised to speak to the local Consular Office to arrange emergency passports.

The travellers' cheque company arranged an immediate replacement of their holiday money.

Bit by bit, they realised that all was not lost, and they managed to
25 continue with what turned out to be a very enjoyable holiday. "But if we hadn't had the help and advice available through our travel insurance company, we'd have been totally lost."

Incredibly, there are many people like the Glovers who run into trouble abroad, yet have no travel insurance. That's why these days
30 people taking a package holiday are normally obliged by the tour operators to have travel insurance; if they don't take the policy offered in the brochure, then they have to show that they have made alternative arrangements. There is no such safety net for people travelling independently, but, thanks largely to newspaper horror
35 stories of uninsured tourists having to sell their houses in order to meet £100,000 bills for medical treatment in the States, most travellers abroad appreciate the need to take out insurance.

MEETING THE CAPTAIN

{adapted from "The Captain and The Enemy" by Graham G

I am now in my twenty-second year and yet the only birthday which I can clearly distinguish among all the rest is my twelfth, for it was on that damp and misty day in September I met the Captain for the first time. I can still remember the wetness of the ground under my
5 gym shoes and how the blown leaves made the courtyard slippery as I ran recklessly to escape from my enemies between one class and the next. I slithered and stopped abruptly while my pursuers went whistling away, because there, in the middle of the courtyard, stood
10 our formidable headmaster talking to a tall man in a bowler hat, a rare sight already at that date, so that he looked a little like an actor in costume. He carried a walking-stick over his shoulder at the slope, like a soldier with a rifle. I had no idea who he might be, nor, of course, did I know that he had won me the previous night, in a
15 backgammon game with my father.

I slid so far that I landed on my knees at the two men's feet, and when I picked myself up the headmaster was glaring at me from under his heavy eyebrows. I heard him say, "I think this is the one you want - Baxter Three. Are you Baxter Three?"

20 "Yes, sir," I said.

The man, whom I would never come to know by any more permanent name than the Captain, said, "What does Three indicate?"

"He is the youngest of three Baxters," the headmaster said, "but not one of them is related by blood."

25 "That puts me in a bit of a quandary," the Captain said. "For which of them is the Baxter I want? The first name, unlikely as it may sound, is Victor. Victor.Baxter - the names don't pair very well."

"We have little occasion here for first names. Are you called Victor Baxter?" the headmaster inquired of me sharply.

30 "Yes, sir," I said after some hesitation, for I was unwilling to admit to a name which I had tried unsuccessfully to hide from my friends. I knew very well that Victor - for some obscure reason - was one of the unacceptable names, like Vincent or Marmaduke.

35 "Well then, I suppose that this is the Baxter you want, sir. Your face needs washing, boy."

The stern morality of the school prevented me from telling the headmaster that it had been quite clean until my enemies had splashed it with ink.

SHOPLIFTING

In the past, most shoplifters agreed that the January sales offered wonderful opportunities for the hard-working thief. With the shops so crowded and the staff so busy, it did not require any extraordinary talent to steal one or two little things and escape unnoticed. It was
5 known, in the business, as 'hoisting'. But the hoisting game is not what it used to be. Even at the height of the sales, shoplifters today never know if they are being watched by one of those mechanical balls (with small cameras hidden inside) hanging from the ceilings of so many department stores, above the most desirable goods. As if that was not
10 trouble enough for them, they can now be filmed at work and obliged to attend a showing of their performance in court.

Sel fridges was the first big London store to install videotape equipment to watch its sales floors. In October last year, the store won its first court case for shoplifting using as evidence a videotape clearly
15 showing a couple stealing dresses. It was an important test case which encouraged other stores to install similar equipment.

When the balls, called sputniks, first made an appearance in shops, it was widely believed that their only function was to frighten shoplifters. Their somewhat ridiculous appearance, the curious holes
20 and red lights going on and off, certainly made the theory believable. It did not take long, however, for serious shoplifters to start showing suitable respect. Soon after the equipment was in operation at Selfridges, store detective Brian Chadwick was sitting in the control room, watching a woman secretly putting bottles of perfume into her
25 bag.

"As she turned to go," Chadwick recalled, "she suddenly looked up at the sputnik and stopped. She could not possibly see that the camera was filming her because it is completely hidden, but she probably had a feeling that I was looking at her. For a moment she paused, then she
30 returned to the counter and started putting everything back. When she had finished, she opened her bag towards the sputnik to show it was empty and hurried out of the store without a sign of regret on her face."

Mark the best choice.

1. Line 5, 'hoisting' probably means_____.

- a) having sales b) escaping c) stealing d) having talent

ILLEGAL TAPES

British pop stars Phil Collins and Duran Duran are to join an international campaign in London this week to stop the production of illegal tapes of the Live Aid concert for famine relief, held last July in London and Philadelphia. Members of Duran Duran told *The Sunday Times*, "Producing illegal tapes of something like Live Aid is criminal. These people are exploiting the means that should help feed starving Africans."

The illegal tapes, manufactured by several different companies in Indonesia, have become best-sellers in the Far and Middle East, making profits estimated at millions of dollars. Now IFPVP, the International Federation of Phonogram and Videogram Producers, which represents more than 600 record companies worldwide, is asking the British government to bring economic pressure on the Indonesian government to stop the illicit trade. The packaging of the unlawful tapes is produced to a high professional standard, bearing the Live Aid logo, a guitar in the shape of Africa, and the words "For Africa famine relief."

"Their packaging makes people believe that the money is going to Africa," says Dave Laing of IFPVP. The federation received reports of at least 30 illegal versions of the tapes sold in many countries such as Singapore, Malaysia and Portugal, where you can, in fact, easily get the real ones. Indonesia has not signed international copyright conventions, and the federation says no legal action can be taken against the people in that country. "It's big business," says Laing. "The people who manufacture these tapes have large factories and their own relationships with the authorities."

A spokesman for the Indonesian government in London last week denied any knowledge of the tapes' being manufactured or sold in his country although he acknowledged that production of illegal tapes in southeast Asia in general was a major problem. "It is shameful that this is happening in our country," he said. "And our government will take action once the facts have been determined."

Mark the best choice.

1. Phil Collins and Duran Duran _____.
 - a) want to make a new tape for the people of Africa
 - b) have decided to organise an international federation
 - c) want to prevent the Live Aid tapes being sold illegally
 - d) have decided to hold another Live Aid concert in July

JORVIK - THE LOST VIKING CAPITAL

A thousand years- ago, York was one of the largest, richest and most famous cities in the whole of Britain. In the 10th century, it was described as being packed with a huge population, and traders from all parts, especially Danes. People called it Jorvik, and knew it as the capital of the North of England, and one of Europe's greatest trading ports. It owed its prosperity to the hard work of Viking settlers from Scandinavia, who had captured it in 866.

Most of the city's buildings were made of wood, and have long since been demolished, or have burnt down or rotted away. In some parts of modern York, however, near the rivers of Ouse and Foss, which run through the centre of the city, archaeologists have found that remains of Jorvik do still survive. They are buried deep below the streets and buildings of the 20th century city. Here the damp soils have preserved the wooden buildings. Whole streets of houses, shops and workshops are found although not in very good condition. All the rubbish left by the people of Jorvik in and around their homes is still there as well.

Between 1976 and 1981, archaeologists from the York Archaeological Trust dug up a part of this lost and forgotten city and found four rows of buildings. Some of the remains were so well preserved - even down to boots and shoes, pins and needles, plants and insects - that every aspect of life at the time could be reconstructed.

The York Archaeological Trust decided to convert the place into a museum and try to tell the story of Jorvik as it was a thousand years ago. To do so, it built the Jorvik Viking Centre in the huge hole created by the archaeologists. Two of the rows of buildings were reconstructed as we think they were. A further two were preserved just as the archaeological team discovered them, the ancient beams set out as they were found in the late 1970's, deep below the new shopping centre, where they have lain for centuries.

In the Jorvik Viking Centre, people from the 20th century journey back in time to the 10th century in cars, which silently move through the place. Meanwhile, modern time travellers watch the townspeople buying and selling, working and playing, in an atmosphere full of the sights, sounds and smells of 10th century Jorvik.

CHILDREN AND LEARNING

A child learning to talk notices a thousand times a day the difference between the language he uses and the language those around him use. Bit by bit, he makes the necessary changes to make his language like other people's. In the same way, children learn to do all the other things without being taught - to walk, run, climb, whistle, ride a bicycle - by comparing their own performances with those of more skilled people, and slowly making the needed changes. Yet, at school we never give a child a chance to find out his mistakes for himself, let alone correct them. We do it all for him. We act as if we think that he will never notice a mistake unless it is pointed out to him, or correct it unless he is made to. Soon, he becomes dependent on the teacher.

Let him work out, with other children if he wants, what this word means, whether this is a good way of saying or doing this or not. In mathematics or science, give him the answer book. Let him correct his own papers. Our job should be to show only the way to get the right answer when the child tells us he can't find a way himself. Let's end all this nonsense of grades, exams, marks. Let us throw them all out, and let the children learn what all educated persons must some day learn, how to measure their own understanding, how to know what they know or do not know. The idea that there is a body of knowledge to be learnt at school and used for the rest of one's life is nonsense in a world as complicated and rapidly changing as ours. Anxious parents and teachers say, "But suppose they fail to learn something essential, something they will need to get on in the world?" Don't worry! If it is essential, they will go out into the world and learn it.

Mark the best choice.

1. What does the writer think is the best way for children to learn things?
 - a) Observing what other people do.
 - b) Having their mistakes corrected.
 - c) Listening to explanations from skilled people.
 - d) Having various skills taught.
2. The passage suggests that learning to speak and learning to ride a bicycle___.
 - a) require more time than other skills to develop
 - b) can develop more easily than adult skills
 - c) are quite different from learning adult skills
 - d) are basically the same

3. The writer believes that teachers should_____.
a) always tell children the correct answers
b) point out children's mistakes to them
c) encourage children to get help from one another
d) measure children's understanding
4. Children's progress at school should only be estimated by_____.
a) educated persons c) teachers and parents
b) the children themselves d) the changing world
5. The author fears that children will grow up into adults who are_____.
a) too independent of others c) unable to think for themselves
b) too critical of themselves d) unable to use essential information

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MAKING YOUR WORKPLACE SAFER

Preventing Accidents

Clearly a major way to prevent accidents before they occur is for the trade union safety representative to carry out regular and effective inspections of the workplace. Recognised safety representatives have the following legal rights:

- *To carry out a formal inspection every three months.
- *To carry out an immediate additional inspection
 - when an accident has occurred,
 - when a disease has been contracted,
 - when there has been a change in working conditions,
 - when new information becomes available concerning hazards.
- * To investigate members' complaints.

Near Misses

All union members should be encouraged to report 'near misses' that happen to themselves or others. Near misses are events such as slipping on wet floors, items falling off shelves and just missing people, loose guards on machinery, and fires that are quickly put out, that could have injured people but which, by luck, did not. Reporting such events to the safety representative may prevent a serious accident in the future.

When An Accident Happens

Union safety representatives should have an agreement with management on being informed as soon as possible of all accidents. Only under that condition will it be possible to reach the scene of the accident immediately to follow these procedures:

- *Make sure it is safe to approach.
- *Make sure anyone injured is receiving attention.
- *Insist that nothing is removed or altered until inquiries are complete.
- *Check the accident is recorded in the accident book and that the record is not concerned with blaming the victim, but is an accurate description.
- *Take statements from the injured person(s), if possible, and other witnesses. Remind witnesses they do not have to give statements to the management by law.
- *Check that the factory inspector has been informed, if required by law.
- *Sketch accident area, take photographs, if possible, and samples of defective equipment or chemicals.

Only if these procedures are carried out properly will it be possible for safety representatives to find out the real cause of the accident.

Mark the best choice.

1. The text is mainly about _____.
 - a) the type of accidents in a workplace
 - b) the precautions to be taken before and after an accident occurs in a workplace
 - c) the description of a safe workplace
 - d) the procedures to choose a safety representative in a workplace
2. If an accident has occurred, the safety representative has the right to _____.
 - a) carry out an inspection every three months
 - b) change working conditions
 - c) consult management
 - d) carry out an inspection immediately
3. If you saw something fall off a shelf and just miss another worker, you should
 - a) call a meeting to investigate it
 - b) report it to the management immediately
 - c) report it to the safety representative
 - d) leave the worker to report it himself

FUTURE OF RAIL TRANSPORT

Unfortunately, England's highest main-line railway station hangs on to life by a thread. Deserted and unmanned since it was officially closed in 1970, Dent, situated high in the hills of Yorkshire, wakes up on six summer weekends each year, when a special charter train unloads walkers, sightseers and people who simply want to catch a train from the highest station, onto its platforms. However, even this limited existence may soon be brought to an end. Dent station, situated on the Carlisle railway line, is said to be the most scenic in the country, but no amount of scenic beauty can save the line from British Rail's financial problems. This year, for the sake of economy, the express trains which used to pass through Dent station have been put onto another route. It is now an open secret that British Rail sees no future for this railway line. Most of its trains disappeared some time ago. The stations on it, besides its bridge, built on a grand scale a century ago, are falling down. It is not alone. Half a dozen railway routes in the north of England are facing a similar threat. The problem is a worn out system and an almost total lack of means to repair it. Bridges and tunnels are showing their age, the wooden supports for the tracks are rotting and engines and coaches are getting old.

On major lines between large cities, there is no problem. These lines still make a profit and money can be found to maintain them, but on the country branch line the story is rather sad. As a track wears out, it is not replaced. Instead, speed limits are introduced, making journeys longer than necessary and discouraging customers who live in the country and who travel only from time to time. If a bridge is dangerous, there is often only one thing for British Rail to do: go out and find money from another source. This is exactly what it did a few months ago, when a bridge at Bridlington station was threatening to fall down. Repairs were estimated at £200,000 and British Rail was delighted, and rather surprised, when the local authorities of two nearby towns offered half that amount between them. This was a good solution, which the British Rail can always make use of.

Mark the best choice.

1. Since 1970, Dent station _____.
- a) has been used only for a part of the year
 - b) has had no express trains passing through
 - c) has been visited by hill walkers only
 - d) has not been used at all

GLOBAL WARMING

According to scientists at the Meteorological Office and the University of East Anglia, who have recently completed their analysis of global temperatures, the eighties were the earth's warmest decade since records began. Their findings show that six of the ten warmest years so far have occurred during the 1980's, with 1988 the hottest of all.

Since 1900, average temperatures have risen by about 0.5°C , which fits in well with predictions from climatologists about how human activities should have warmed the planet. The factors that contribute to the warming up of the atmosphere are mainly carbon dioxide gas, produced by the burning of fossil fuels and forests, pollutants, such as chlorofluorocarbons, used in refrigerators, and methane.

Climatologists predict that by midway through the next century, temperatures may have risen by as much as 4°C . Happening so quickly, that could catastrophically reduce mankind's ability to grow food, destroy or severely damage what wildlife and wildernesses remained and raise sea levels, flooding coastal cities and farmland. Phil Jones, senior researcher at the University of East Anglia, said: "If we are changing the climate, we should do something now rather than wait until the warming is more severe."

Dr. Paul Heaton and Dr. David Parker of the Meteorological Office gathered together temperature records from about 1000 different locations spread across every continent and compared them with the average for those places from 1951 to 1990. The research also included temperatures measured on ships. The scientists found 1989 was 0.23°C above the 1951-80 average, and 1988 was 0.31 above. They agree with American researchers that the warmest years during this century were the eighties, and the tendency may be for the nineties to be even hotter!

Mark the best choice.

1. Which of the following is **not** given as a cause of global warming?
 - a) Chlorofluorocarbons.
 - b) The burning of fossil fuels.
 - c) Pollutants from cars.
 - d) Methane.

COMETS

from Illustrated London News, 1985

There can be few people who have not heard of comets, but there are still a great many non-scientists who have no real idea of what a comet is. The most popular mistake is to assume that a comet streaks across the sky and disappears in a few seconds. In fact, all comets are very distant - far beyond the top of the earth's atmosphere - and you cannot see them moving. If you see an object moving visibly, it certainly cannot be a comet. It will be either an artificial satellite, thousands of which have been launched since the Space Age opened with Russia's Sputnik 1 in October, 1957, or else a meteor. Of course, it can also be a weather balloon or a high-flying aircraft.

Comets belong to the Sun's family, or solar system, but they are quite unlike planets. They are not solid and rocky; a comet consists of an icy central part (or nucleus), a head (or coma) and a tail or tails made up of tiny particles of 'dust' together with extremely thin gas. Comets may be enormous (the head of the Great Comet of 1843 was larger than the Sun), but they are very light since the nucleus, the only relatively massive part of a comet, cannot be more than a few miles in diameter. If a comet fell to the earth, it would only cause local damage.

Comets move around the Sun. In almost all cases their paths (or orbits) are elliptical, and except for Halley's Comet, all the really bright comets take thousands or even millions of years to complete one circuit. This means that we cannot predict them. During the last century, several were seen but in our own time they have been extremely rare. The last really 'great' comet was that of 1910, though there have been others which have become bright enough to be seen with the naked eye. Halley's Comet is unique because it appears every 76 years, and it has been seen regularly since well before the time of Christ; there is even a Chinese record of it dating back to 1059 B.C. However, it was only recently that astronomers realised that there was something unusual about it.

EFFECTS OF SNOW

It is interesting to observe the effect that the arrival of snow has on people in different countries. There are those countries for whom the arrival of the first snow showers is an expected annual event. There are those countries for whom the arrival of snow at any time of the year would be almost unheard of, and would be regarded as a major climatic catastrophe, or even a miracle.

But there are countries between these two 'extremes' that normally expect snow some time over the winter months, but never receive it regularly or in the same quantities every year. For them (and Britain is a prime example of such a country), the arrival of snow quite simply creates havoc. Within hours of the first snowfalls, however light, roads (including motorways) are blocked, train services are disrupted and bus services to suburbs and country districts are withdrawn. Normal communications quickly begin to suffer as well; telephone calls become difficult and the post immediately takes twice as long as usual. And almost within hours there are also certain shortages - bread, vegetables and other essentials - not because all these things can no longer be produced or even delivered, although deliveries are disrupted, but mainly because people panic and go out and stock up with food and so on - 'just in case'.

But why does snow have this effect? After all, the Swiss, the Austrians and the Canadians don't have such problems. The answer is quite simply a lack of planning and preparation - and we can't blame the weather forecasters for that. We have to remember, however, that equipment needed for dealing with snow and ice costs money. To keep the roads clear, for example, requires snowploughs and vehicles to spread grit or salt. The argument against investing in snowploughs in a country like Britain is that they are only used for a few days in any one year, and that money could more usefully be put into other things such as the hospital system, social services, helping the elderly, and so on.

Mark the best choice.

1. Line 7, 'extremes' refers to the types of _____.

- a) climates b) snow showers c) countries d) annual events

NUCLEAR THREAT

Many of the scientific achievements that we take for granted today have reached far beyond the dreams of scientists and science fiction writers of just seventy-five years ago. One of the most spectacular of these scientific accomplishments was the splitting of the atom. Life
5 has never been the same since that event. From microwave ovens to electrical power and nuclear medicine, to ships that can sail the seas for as long as twelve years without refueling, the atom provides a better life for many of the inhabitants of the earth. Yet, this same power that is used today to detect genetic disorders in unborn children
10 or to destroy a malignant cancer cell was the destructive force that killed over one hundred thousand people in Hiroshima and Nagasaki at the end of World War II. The splitting of the atom, the unleashing of its terrific power, poses the greatest single threat known to humanity. We now have the power to destroy in a matter of minutes a
15 civilisation that has taken centuries to develop. Never before has the power for such potential good or such total destruction existed.

Mark the best choice.

1. Line 4, 'accomplishments' has the same meaning as _____.
a) dreams b) achievements c) studies d) investigations
2. _____ is **not** an example of the atom providing a better life for humans.
a) Detecting genetic disorders in unborn children
b) Destroying a malignant cancer cell
c) Destroying a civilisation
d) Fueling ships
3. Which of the following is **not** mentioned in the text?
a) Splitting the atom was one of the greatest dreams of scientists seventy-five years ago.
b) Earlier scientists didn't even dream of splitting the atom.
c) The splitting of the atom is the biggest danger to the human race.
d) There is no power that can create the same effects as those produced by the atom.

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ACID RAIN

- Acid rain is rain, snow, or fog that contains high amounts of sulphuric or nitric acid. To some extent, acidic rain occurs naturally and can have a beneficial effect - for instance, serving as fertilizer. But, when the acidity of the precipitation is abnormally high over a prolonged period, it can overwhelm the ability of water and woods (and buildings, statues, car finishes, fish, game, and humans) to accommodate it. When this happens, lakes and trees may die, game species may weaken, and human health may be endangered. Those who have studied the current crisis believe it to be the result of high acid levels caused primarily by sulphur dioxide emissions from coal-fired utility plants and nitrogen oxide emissions from automobiles. These pollutants are either transformed to acid in the air or deposited on the ground in dry form, combining with ground water to form sulphuric or nitric acid.

Mark the best choice.

1. Line 12, These pollutants' refers to _____.
 - a) coal-fired utility plants and automobiles
 - b) emissions from various plants
 - c) sulphur dioxide and nitrogen oxide
 - d) high levels of acid
2. Acid rain is particularly dangerous when it _____.
 - a) falls heavily for a long time
 - b) combines with ground water
 - c) is deposited in dry form
 - d) causes lakes and trees to die

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NICOTINE ADDICTION

A large-scale campaign to alert smokers to the dangers of filling the lungs with carcinogenic smoke has been undertaken in many countries. Cigarette promotions have been banned on television in several major areas, and there has been endless discussion of how to discourage children from taking up the habit. Gruesome films are shown of pathetic hospital patients in the advanced stages of lung cancer. A few smokers have responded

intelligently and given up, but many others have become so alarmed that instead they have been forced to light up an extra cigarette to calm their shattered nerves. In other words, although the problem is at last being dealt with, it is by no means solved.

The great error of the anti-smoking campaigners is that they rarely stop and ask the basic question: why do people want to smoke in the first place? They seem to think it has something to do with drug addiction - with the habit-forming effects of nicotine. There is an element of this certainly, but it is by no means the most important factor operating. Many people do not even inhale their smoke and can be absorbing only minute amounts of the drug, so the causes of their addiction to cigarettes must be sought elsewhere. The answer clearly lies in the act of oral intimacy involved in holding the object between the lips and this answer almost certainly applies as the basic explanation for the full inhalers as well. Until this aspect of smoking is properly investigated, there will be little long-term hope of eliminating it from our stressed, comfort-seeking cultures.

Mark the best choice.

1. The purpose of the anti-smoking campaign is to _____.
 - a) ban cigarette advertisements on television
 - b) discourage children from starting smoking
 - c) show films of patients suffering from lung cancer (
 - d) make smokers aware of the harmful effects of smoking
2. As a result of the campaign, _____.
 - a) there has been an increase in the number of smokers
 - b) some people even started to smoke more cigarettes
 - c) the problem of smoking has been partly solved
 - d) cigarette consumption has decreased dramatically
3. According to anti-smoking campaigners, people go on smoking mainly because of _____.
 - a) the feeling of comfort that cigarettes give them
 - b) their addiction to taking drugs
 - c) the habit-forming effects of nicotine
 - d) the psychological satisfaction of holding the cigarette between the lips

LOOKING FOR A PARTNER?

In India, parents have traditionally found husbands or wives for their sons and daughters. Today, the parents are using a new technique in their search: advertisements in the Sunday newspapers. Every Sunday morning millions of Indians settle down with a cup of tea and the special weekend issues of their newspapers, just as Americans do. But here, with the marriage season approaching, many of them turn quickly to a Sunday feature that is particularly Indian - the columns of marriage advertisements in which young people seek husbands and wives.

In addition to helping young people find suitable marriage partners, these advertisements reflect the changes that are occurring in Indian society. The thousands of advertisements published each week increasingly reflect social changes that are coming to this traditional society. For example, although women are still usually described in terms of appearance or skills in "the wifely arts", information about their earning power is entering more and more in the advertisements. This portrays the arrival of the working wife in India.

Divorce, which used to be almost unheard of in India, is sometimes now mentioned in the advertisements as in the case of a woman whose advertisement explained that she had been "the innocent party" when her marriage broke up.

As a sign of the slight loosening of the rigid caste (social class) system, a number of advertisements promise "caste not important", or "girl's abilities will be main consideration". The majority of them, however, still require not only caste but also a certain home region or ethnic origin.

Because of high unemployment and a generally poor standard of living here, one of the best attractions a marriage advertisement can offer is a permit to live abroad, especially in Canada or the United States. A person who has one can get what he wants.

One recent Sunday in Madras, for example, a Punjabi engineer living in San Francisco advertised for a "beautiful slim bride with lovely features knowing music and dance". And a man whose advertisement said that he had an American immigration permit was able to say, "Only girls from rich, well-connected families need apply".

11. Which of the following statements is true?
- a) The caste system has become totally unimportant for the Indians.
 - b) Although caste isn't required any longer, ethnic origin and home regions are still important in marriage.
 - c) A girl's abilities are the major requirements for marriage in India nowadays.
 - d) Caste, home region and ethnic origin are still important for most Indians.
12. The last paragraph gives an example of _____.
- a) the qualities that a person with an immigration permit can ask for and expect to get
 - b) the kind of advertisement a Punjabi engineer would give
 - c) a marriage advertisement from the Madras newspapers
 - d) the importance Indian men attach to having wives who know music and dance

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SEX DISCRIMINATION IN THE WORKPLACE

5 Feminist organizations showed people that discrimination existed everywhere. They showed that it was difficult for women to enter various professions. In 1972, for example, only 9.3% of doctors and dentists were women, only 4% of all lawyers and judges were female, and only 13% of all medical students were women. It was also shown that society preferred to promote men to the positions of highest responsibility - even in traditionally female professions. For example, although more than 90% of elementary school teachers in 1970 were women, more than 80% of the directors were men. In addition, in many areas of employment, women received lower wages than men for the same work.

10 According to feminists, this discrimination was made possible by the attitude of society to women. The U.S. society traditionally perceives women primarily as childraisers and homeworkers. Men have traditionally been the breadwinners, who support their families with their incomes. Therefore, when women began to work outside the home, their income did not seem to be as important as the income of their husbands. There was a belief that a man's wages needed to be enough to support his family. This idea was then used to justify higher wages for men than for women.

20 Feminists argued that these attitudes were based only on tradition and not on any law of nature. It is true, of course, that a woman's

biological function requires her to remain at home for some time before and after a child is born. This is a fact of life. Only women can
25 bear children. However, this does not necessarily mean that the woman has to raise the children and manage the house while the husband works outside the home. No law of nature forces people to accept these roles. A woman has the right to choose between a career as a full-time mother and housewife and a career outside the home. Or
30 she can combine the two careers if her husband is prepared to assist her. Only tradition, not nature, prevents this.

Therefore, feminists argue, attitudes toward women and their roles in society must change. If society needs women workers, it must permit them to have the same opportunities as men. If men want the
35 economic benefits of working wives, they will have to accept changes in the traditional system of male and female responsibilities. Since the early 1970's, feminist organizations have protested the lack of equality for women and have demanded an end to sex discrimination. They have tried to educate both men and women; they have attempted to
40 show people that attitudes toward the roles of men and women can be more flexible. It is possible, they argue, for women and men to share the responsibilities of supporting and raising a family.

Mark the best choice.

1. Line 1, 'discrimination' means _____.
a) being well-paid c) treating differently*
b) difficulty in finding jobs d) being promoted
2. Line 14, 'perceives' means _____.
a) prefers b) sees c) enables d) creates
3. Line 25, 'bear' means _____.
a) bring up b) support c) staricf d) give birth to
4. Line 30, 'assist' means _____.
a) replace b) help c) accompany d) manage
5. Line 34, 'them' refers to _____.
a) feminists c) attitudes toward women
b) women workers d) women's roles
6. Line 35, 'benefits' means _____.
a) advantages b) demands c) uses d) responsibilities

THE AGONY COLUMN

There is one part of women's magazines that every man reads. It is the section popularly known as the 'agony column', where women, and increasingly men, write for advice on what are sometimes referred to as 'affairs of the heart'. The person who answers these letters usually

5 has a very reassuring sort of name, which suggests a gentle middle-aged lady of great wisdom and experience, but who at the same time is as homely and approachable as your favourite aunt. At one time, it used to be widely believed that the letters were, in fact, all made up by someone on the editorial staff, and that the 'Aunt Mary'

10 who provided the answers was, in fact, a fat man with a beard, who drank like a fish, smoked like a chimney and was unfaithful to his wife. Although this may be true in some cases, the majority of advice columns today are completely genuine, and the advisory staff are

15 highly-qualified people with a deep understanding of human problems. At one time the letters, which were published and answered in full, dealt with problems of a very general emotional nature. The recurrent themes were loneliness, unhappiness in marriages and problems of adolescence. Occasionally, only the answers were published, not the letters themselves. Much of the fun in reading them

20 lay in trying to work out the problem that led to such peculiar answers.

Agony columns have undergone great change. Nowadays, everything is much more explicit, and questions of the most intimate kind are fully dealt with. As the agony columns have become more professional and more frank, a lot of the fun has gone out of them.

25 This is undoubtedly a good thing because there is something sad about our tendency to laugh at the misfortunes of our fellow men. In addition, agony columns are no longer restricted to emotional problems. Problems of various natures are now dealt with. For example, the advice columns get a lot of letters from people who are

30 distressed about what they believe to be terrible physical deformities. Others are terrified of meeting people because they suffer from shyness, or are convinced that they are unattractive. It is not really funny to be so self-conscious about your appearance, or so lacking in self-confidence, that you stay in your room instead of going out and

35 meeting people. If they do nothing else, the agony columns let you know that you are not the only one who is suffering from that particular problem.

The advisers seem to be on much more dangerous ground when they start to give advice on the most delicate and intimate aspects of

40 human relationships. We cannot doubt either their good intentions or
 their understanding of human nature. But it is risky business to advise
 a married couple on how to save their marriage when what you know
 about them is only what they reveal to you in a short letter. Not only
 45 that, but the chances are that you only get one side of the story
 because only one of the partners will write to tell you about the
 shortcomings of the other. It is difficult to know how you can usefully
 answer such letters.

To their credit, the best advisers always make the point that without
 knowing more, they must limit themselves to general advice, and in
 50 some cases will even offer to enter into private correspondence in
 order to get more information and consequently to give more useful
 advice. Without doubt, they are, in their way, performing a valuable
 social service. If they were not, the agony columns would soon dry up
 for lack of interest, and more importantly for lack of confidence.

Mark the best choice.

1. Line 4, 'affairs of the heart' means _____.
 a) heart diseases c) love matters
 b) physical illnesses d) family problems
2. Line 13, 'genuine' means _____.
 a) imaginary b) depressing c) real d) professional
3. Line 20, 'peculiar*' means _____.
 a) dangerous b) usual c) common d) strange
4. Line 22, 'explicit' means _____.
 a) strictly personal c) easily discussed
 b) clearly expressed d) completely different
5. It used to be thought that readers' problems were dealt with by a _____.
 a) kind middle-aged lady c) team of qualified advisers
 b) man lacking good character d) woman from the editorial staff
6. The people who deal with readers' problems nowadays are generally
 a) qualified people who understand such problems
 b) women who have a wide experience of life
 c) chosen from amongst homely and approachable aunts
 d) people who have experienced similar problems

BETTER REFRIGERATORS: THE COLD FACT

One-fifth of the electricity used in the average U.S. home feeds the steel box that dominates the kitchen. America's 110 million refrigerators tax utilities and they also release pollutants.

5 Power plants would produce 115 billion pounds of carbon dioxide a year running those appliances and they would eat 77 billion kilowatt-hours of electricity - if all were 1993 models. Many are older, so the true figures are higher. In addition, 275 million pounds of ozone-depleting chlorofluorocarbons (CFCs) used as a refrigerant and in insulation are time bombs in current models.

10 However, much more efficient refrigerators will hit the market within the next year or two. To encourage improvements, 24 companies sponsored a contest to build the best new prototype. The two finalists are Frigidaire and Whirlpool, and the winner, soon to be announced, will collect 30 million dollars. Key innovations will
15 doubtless include a vacuum-sealed insulation system, polymer door gaskets and compressors, and improved refrigerating and defrosting cycles.

"We call the new technology 'the golden carrot' because of the incentives," says Mike L'Ecuyer of the Environmental Protection
20 Agency. If current models were that good, carbon dioxide emissions would drop by at least 28 billion pounds. Power consumption - and consumers' bills - would drop by 25 percent. And by 1998 all new models must be CFC free.

Mark the best choice.

1. Lines 1 -2, 'the steel box' refers to the _____.
a) electricity b) U.S. home c) kitchen d) refrigerator
2. What are 'time bombs' (line 9) in current models?
a) 275 million pounds of ozone. c) Insulation systems.
b) Chlorofluorocarbons. d) True figures.
3. Which of the following is not new for a refrigerator?
a) It has a vacuum-sealed insulation system.
b) CFCs are used as a refrigerant.
c) It has an improved defrosting cycle.
d) Door gaskets and compressors are made of polymer.

4. One disadvantage of a refrigerator which is **not** mentioned in the text is that it
- a) releases pollutants
 - b) uses up too much electricity
 - c) is power consuming
 - d) is too cold to keep fresh fruit

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HUMAN INFANTS

One of the unfortunate features of the human condition is that the natural exploratory behaviour of human infants has to be restricted, especially in conditions of civilization, where the hazards of traffic, electricity, gas, stairs and many other complex dangers have been added to those which are found in primitive, rural circumstances. We are forced to overprotect our children psychologically, because we live in an artificial environment. We also tend to guard them too carefully in situations where this is not necessary, because small children are ill-equipped to look after themselves when surrounded by the dangerous trappings of civilization.

In a recent experiment, Eleanor Gibson constructed a 'visual cliff'; that is, a floor which appears to end in a steep drop, but which is actually safe since the floor continues as a sheet of tough glass. Babies crawl to the apparent edge, but will not take the risk of crawling onto the glass even if encouraged to do so, since they are already aware of the danger of the drop. This is not to say that it is safe to leave a baby on the edge of a real cliff, since the child may turn round and fall off backwards.

The pioneer doctors who started the Peckham Health Centre discovered that quite tiny children could be safely left in the sloping shallow end of a swimming bath. Provided no adult interfered with them, they could teach themselves to swim, exploring the water gradually and never going beyond the point at which they began to feel unsafe. Similarly, children would teach themselves to ride bicycles and use gymnasium equipment, and did so more confidently and quickly than if adults tried either to urge them on or warn them to be careful.

GANDHI INDIAN RESTAURANT

Tel: 811966

A Unique Experience in Indian Cuisine

Opening night at the Gandhi Restaurant brought cries of praise and delight from customers when they tasted different samples of the unique cuisine on Monday night.

Officially opened by County Councillor, Mr. Tony Peaston, the Candhi offers the discerning diner authentic Indian dishes, many available for the first time in Hampshire.

The secret lies in the preparation - only authentic Indian herbs and spices are used to individually prepare each special dish, following ancient recipes, many handed down through generations of Indian chefs.

High Standard

"I've travelled extensively and dined at many Indian restaurants throughout the country, but rarely have I tasted Indian food of such a high standard," extolled Councillor Peaston.

"Whilst Gandhi himself was a leader of men, the Gandhi Restaurant could be considered the leader of a new breed of Indian cuisine in Hampshire," he added.

"By far the best curry we have had in the Portsmouth area," was the comment of Havant diners, Mr. and Mrs. Jim Cairns of Dcnvilles.

"We enjoyed the different menu and found the advice of the staff, explaining how each dish was prepared, very helpful for deciding on our choice of menu," they said.

Such glowing comments reflect the exclusive nature of the dishes available at the Gandhi Restaurant.

Original Recipes

You can choose from a menu which offers curries and tandoories, knowing each one is specially cooked for you, with individual care and attention, according to strict original recipes, by a top London chef, formerly of Covent Garden.

And after you have sampled the spicy delights of your main course, you can select from a choice of original Indian sweets to temper your palate.

Relaxing in the comfortable surroundings of the restaurant, you can have a hot towel to freshen yourself or clean your fingers between courses - another touch of Indian living.

The Gandhi Restaurant, situated at 139 Kingston Road, Portsmouth is fully licensed and open seven days a week.

You can pop in for a traditional Indian lunch between 12 and 2.30 pm or enjoy a languid evening meal, when the restaurant is open from 6 pm to midnight.

But take care to book in advance, as demand for this cuisine is expected to be high, so avoid disappointment by telephoning Portsmouth 811966.

As proof of confidence in your enjoyment, the Gandhi is offering a 10 per cent discount on the cost of your meal, when you produce this advertisement within three months of the opening.

The staff at the Candhi look forward to serving you with your first taste of truly authentic Indian cuisine in this area - and they know you will come back again and again.

STONEHENGE

On a fine midsummer morning, dawn breaks slowly over Salisbury Plain. For a full hour before sunrise, Stonehenge, that prehistoric circle of standing stones, stands out in eerie silence against the first yellow-green light of day. In the shadow of the great stones, the modern-day 'druids', people clothed in the religious robes and hoods of the ancient Celtic priests, have begun their annual ceremony of fire and water, celebrating the dawning of the year's longest day. Only a few lucky people are allowed to watch the ritual inside the stone circle itself. These are people with official passes: journalists, photographers, television cameramen and the villagers of nearby Amesbury. Outside, a small crowd has gathered beyond the protective barbed-wire fence constructed to save the stones from the inquisitive touch of countless tourists whose busy fingers have gradually worn away the surface of many stones.

The sight they have all come to see begins a few seconds after 5 am, when the first rays of the sun appear over the edge of the horizon. It is the start of an event precisely planned by the people who built Stonehenge, a temple to the Sun, almost 4,000 years ago.

And yet no one knows for certain who erected the stone-circles or why they did so. The reason for this is simple: the builders had no writing. The architects of Stonehenge could therefore not leave behind them any documents or inscriptions to explain why they chose to build this extraordinary construction on Salisbury Plain; why they mixed local stones with others cut more than 200 miles away; why they demolished and rebuilt it several times in the course of a thousand years; or why they balanced huge stones on top of each other in a style more suited to building in wood.

But Stonehenge is no isolated mystery, for it is just one of a thousand prehistoric stone circles scattered throughout the British Isles and northern France. They have survived because they were built in what are now remote and sparsely inhabited regions: perhaps thousands of others have not stood the test of time and have been deliberately destroyed or absorbed into the landscape.

Mark the best choice.

1. The dawn celebrations at Stonehenge could be described as
 - a) a demonstration of Celtic priests
 - b) religious in style
 - c) a modern ritual
 - d) dangerously primitive

2. What do local people have in common with the media people?
 - a) Official connections with Amesbury and Salisbury Plain.
 - b) An interest in photography.
 - c) Special viewing opportunities.
 - d) A belief that the annual ritual brings good luck.
3. The purpose of the barbed-wire fence is to _____.
 - a) prevent people digging up the surface of the ground
 - b) protect the druids from the attentions of numerous tourists
 - c) make it impossible to steal the stones
 - d) prevent visitors from damaging the stones
4. Certain features of Stonehenge are _____.
 - a) almost impossible to understand
 - b) the result of bad workmanship and poor architectural taste
 - c) examples of mixed religious faiths
 - d) unexplained despite the inscriptions that they bear
5. Stonehenge and other similar sites have survived because they were
 - a) carefully tested by their builders
 - b) built far away in northern France
 - c) built on private land
 - d) situated in quiet and isolated areas

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HISTORY OF FARMING

Knowledge of farming was brought into Central Europe by immigrants from the Middle East and appears to have spread widely and rapidly during 5000 B.C. This spread was encouraged by the presence of extensive areas of fertile soils which could be worked easily and successfully by the fairly simple techniques and equipment of the first farmers in Central Europe. Access to this desirable soil was made easy by the use of routes along natural waterways, such as the Danube and the Rhine. These factors helped the peasant farming economy to adjust to the environment successfully. Without this adjustment to the environment, there would have been little opportunity for further advance, either in technology or in social organisation.

The earliest farmers brought with them the knowledge of agriculture and

of related crafts and skills which had been developed in the Middle East. These included such techniques as the making of pottery and stone tools, and the building of houses and farm buildings. The advance from a hunting to a farming economy was important not only in respect of food-winning, but also because the yearly farming cycle provided the farmers with a rest from the continual search for food. The hunting economy normally demanded full-time hard work to get food.

House construction, too, needed to adapt. Whereas, the flat-roofed, sun-dried mud-brick houses of the Middle East were ideally suited to its warm, dry climate, the moist European climate required something more suitable to withstand strong winds and keep off rain.

Mark the best choice.

1. What contributed to the spread of farming in Central Europe?
 - a) The mildness of the climate.
 - b) Advanced technology and natural waterways.
 - c) The large numbers of farmers.
 - d) Favourable conditions for the cultivation of land.
2. What was the key to further success in technology or in social organisation?
 - a) The ability to adapt.
 - b) Easy access to the farms.
 - c) Efficient social organisation.
 - d) The use of rivers to transport equipment.
3. When early farmers arrived in Central Europe, they_____.
 - a) found out that Central Europe was a highly-developed region
 - b) had more knowledge about agriculture than the farmers living there
 - c) had difficulty in adapting to the environment
 - d) had to shift to the hunting economy
4. A farming economy was preferable to a hunting economy because_____.
 - a) it did not require such a large area of land
 - b) it was better suited to the needs of Europeans
 - c) it provided a plentiful supply of food
 - d) it reduced the time spent obtaining food
5. The Middle Eastern style of house construction was_____.
 - a) ideally suited to Central European farming conditions
 - b) based on the use of stone tools
 - c) a reflection of its climate
 - d) ideal for keeping out wind and rain

FELT IMAGE

When you close your eyes and try to think of the shape of your own body, what you imagine (or, rather, what you feel) is quite different from what you see when you open your eyes and look in the mirror. The image you feel is much vaguer than the one you see. And if you lie still, it is impossible to imagine yourself as having any particular size or shape.

When you move, when you feel the weight of your arms and legs and the natural resistance of the objects around you, the 'felt' image of yourself becomes clearer. It is almost as if it were created by your own actions and the sensations they cause.

The image you create for yourself has rather strange proportions: certain parts feel much larger than they look. If you poke your tongue into a hole in one of your teeth, it feels enormous; you are often surprised by how small it looks when you inspect it in the mirror.

But although the 'felt' image may not have the shape you see in the mirror, it is much more important. It is the image through which you recognise your physical existence in the world. In spite of its strange proportions, it is all one piece, and since it has a consistent right and left and top and bottom, it allows you to locate new sensations when they occur. It allows you to find your nose in the dark, scratch itches and point to a pain.

Mark the best choice.

1. The 'felt' image of oneself is clearer _____.
 - a) in an upright position with eyes closed
 - b) when you look in the mirror
 - c) in a lying position with eyes open
 - d) when you start to move
2. The 'felt' image _____.
 - a) has a certain size and shape
 - b) has different proportions from the real image
 - c) is created by actions and the related sensations
 - d) makes you feel the natural resistance of the objects around you
3. Which of the following is **not** correct about the 'felt' image?
 - a) It is more important than what you see in the mirror.
 - b) It makes you aware of your physical being.
 - c) It allows you to locate new sensations.
 - d) It makes you feel that your body is larger than it really is.

FALL OF THE MEDITERRANEAN

Apart from the nine-mile-wide Strait of Gibraltar, the Mediterranean is landlocked, virtually unable to cleanse itself. It takes 80 years for the water to be renewed, far too slow a process to cope with the remorseless rush of pollution.

- 5 For centuries, the people of the Mediterranean have used the sea for their wastes. Weak coastal currents keep sewage and industrial waste close to the shore and gently spin floating oil and tar towards the beaches. And the sea's feeble currents can do little to help remove them. Vast areas of the shallows of the Mediterranean - the beaches -
 10 are awash with bacteria and it doesn't take long for these to reach people.

- An even greater danger is involved in the seafood dishes that add so much pleasure to holiday menus. Shellfish are prime carriers of many of the most vicious diseases of the area. They often grow amid
 15 pollution. And even if they don't, they are infected by the popular practice of 'freshening them up' - throwing filthy water over them in markets.

Mark the best choice.

1. The Mediterranean cannot cleanse itself as _____.
 a) there is only one strait linking it to the ocean
 b) it has been used for waste disposal for centuries
 c) the Strait of Gibraltar is only nine miles wide
 d) the land around it is densely populated

2. Coastal currents in the Mediterranean _____.
 a) are too weak to remove the wastes
 b) carry oil and tar away from the beaches
 c) flow too close to the shore
 d) cause the wastes to float offshore

3. Line 10, 'these' refers to _____.
 · a) bacteria b) the beaches c) vast areas d) the shallows

4. Shellfish that grow in unpolluted areas _____.
 a) add pleasure to holiday menus
 b) are much safer than those growing in polluted seas
 c) may still carry disease
 d) have to be kept fresh by throwing filthy water over them

YOUNG CITY BUILDERS

"My children really understand solar power and geothermal energy," says a second grade teacher in Saugus, California. "Some of them are building solar collectors and turbines for their energy course." These young scientists are part of the City Building Educational Program, a unique curriculum for kindergarten through twelfth grade that uses the process of city planning to teach basic reading, writing, and math skills.

The children don't just plan any city. They map and analyze the housing, energy and transportation requirements of their own community and project its needs in 100 years. With the help of an architect consultant who visits the classroom once a week, they invent new ways to meet these needs and build styrofoam models of their creations. "Designing buildings of the future gives children a lot of freedom," says Doreen Nelson, the teacher who developed this program. "They are able to use their own space-age fantasies and inventions without fear of criticism, because there are no wrong answers in a future context. In fact, as the class enters the final model-building phase of the program, an elected 'mayor' and 'planning commission' make all the design decisions for the model city, and the teacher steps back and becomes an adviser."

Mark the best choice.

1. The City Building Educational Program_____.
 - a) was designed by an architect consultant
 - b) is a curriculum developed for kindergarten children only
 - c) was devised to teach children some basic skills
 - d) aims to develop an awareness of housing and energy
2. Which of the following is not correct about the program?
 - a) The students are given an opportunity to develop the general skill of problem-solving.
 - b) The teacher herself picks some students for the planning commission.
 - c) The students are allowed to use their imagination freely.
 - d) The teacher is not actively involved in making decisions for the design of the model city.

MINNIE

Deep in the far west of Cornwall, England, Minnie, a typical Himalayan bear, is sleeping peacefully through the winter, unaware that she may not survive to enjoy waking in the spring. Her owner, Mr. Ken Trengoved, has been told that unless he pays a £153.60
 5 license fee, the bear he has owned since she was born may have to be destroyed. To Mr. Trengoved, however, the demand represents an impossible amount, for he has only an old-age pension on which to live.

10 The local authorities have only recently found out about Minnie and have to demand a fee according to the law: the Dangerous Wildlife Act, 1976.

Mr. Trengoved, who lives in a caravan in the mountains, said: "The last thing in the world I want to lose is Minnie, who has been my friend for 20 years. She is only halfway through her life." Minnie, who
 15 stands more than 2 metres tall and weighs 180 kg, is kept nearby the caravan, in a secure cage within a wired area which she shares with dogs, cats, horses and rabbits. Mr. Trengoved said: "I love animals but Minnie is special. Even if she was taken away to somewhere else, I don't think she would live long, for this is her home."

20 Mr. Bob Reason, the local health officer, said: "We have no option but to collect this license fee. If Mr. Trengoved cannot find the money, then perhaps a new home could be found for Minnie in a zoo or circus. The last thing we would like to do is to destroy her." He said the license fee was high because to comply with the law, the bear would
 25 have to be examined by a veterinarian specializing in wild animals. Mr. Reason said that since Minnie's story had become known, some local people had contacted the authorities offering financial help to Mr. Trengoved, so it is possible that this story will have a happy outcome. Our hopes no doubt will be shared by Minnie, who, deep in
 30 hibernation, is probably dreaming of honey.

Mark the best choice.

1. Which of the following could be an alternative title?

- | | |
|-------------------------|-----------------------------|
| a) Circus Bear Released | c) Dangerous Bear Destroyed |
| b) Bear in Danger | d) Ministry Forbids Bear |

2. Minnie is

- | | |
|---------------------------|--------------------------------|
| a) 20 years old | c) a baby bear |
| b) lives in the Himalayas | d) lives in a cave in Cornwall |

HOW CRUCIAL IS DREAMING?

- For a long time, night dreaming was thought to interfere with the necessary rest that sleep provides. However, experiments have indicated that dreams are not only a normal part of the sleep process but also vital to psychological health. Dr. William Dement of the
- 5 Sleep Center of Mount Sinai Hospital, who is conducting extensive experiments on the significance of dreaming, reports that subjects whose dreams were interrupted regularly exhibited emotional disturbances such as hypertension, anxiety, irritability, and concentration difficulties. "One of the subjects, " Dement reported,
- 10 "quit the study in panic and two insisted on stopping, because the stress was too great." It was also observed that in five subjects there was considerable increase in appetite, i.e. they ate a lot, during the period of dream deprivation. As soon as the subjects were allowed to dream again, all psychological disturbances vanished.
- 15 More drastic experiments in Edinburgh, Scotland, supported these findings. Volunteers who were kept awake for very long periods dreamed considerably more than usual when finally permitted to sleep. It is as though a pressure to dream builds up. That is, the more your dreaming is restricted, the more you are inclined to dream when
- 20 allowed to sleep. If dream suppression is carried on long enough, the result is serious disorders in the personality and, therefore, experiments conducted in this area should be monitored by professionals only.

Mark the best choice.

1. Line 1, "to interfere with" means to _____.
 - a) improve
 - b) disturb
 - c) recover from
 - d) extend

2. Line 4, 'vital' means _____.
 - a) essential
 - b) unimportant
 - c) useless
 - d) efficient

UNDERSTANDING TEENAGE CULTS

This is a British newspaper article which tries to explain why teenagers are attracted to certain teenage 'cults' whose beliefs and behaviours are considered strange, unnatural, or harmful but which become very popular or fashionable for a short period of time.

Ever since the early 1950's, there have been attempts to explain why youth cults happen. None of them has been entirely convincing.

The Reaction Theory

Teenagers want to show how different they are from their parents and, perhaps more importantly, their older brothers and sisters. If the last fashion had long hair and wide trousers, then the next one will have short hair and narrow trousers. There seems to be a lot of truth in this.

The Global Village Theory

Because of films, records, television and radio, teenagers are aware of what their contemporaries are doing all around the English-speaking world. Almost as soon as there were hippies in San Francisco, we had them too. A problem with this theory is that the time has to be right for a style to be adopted. The main influence on teenagers remains their friends.

The Teenage Idol Theory

Teenagers imitate the people they look up to, chiefly film stars and pop performers. When David Bowie used eye shadow, so did many of his male fans. However, this only succeeds if the pop star is in tune with the way youth culture is already going.

The Technology Theory

Many developments in teenage culture were possible only because of new technology. Electric guitars plus amplification meant you could have pop groups and pop festivals. The transistor radio made pop music inevitable.

The Drug Culture Theory

This theory suggests that the nature of a youth cult is determined by the drugs that it takes. Speed (amphetamine) equals aggression and energy - think of punks and skinheads. Pot (cannabis) equals relaxation and mysticism - think of hippies. Even 'ordinary' society has its drugs, such as alcohol, nicotine, coffee, etc. But maybe the style came before the drug.

The Capitalist Domination Theory

Youth culture happened because commerce understood that teenagers had money to spend and worked out ways of making them buy more records, clothes and concert tickets. This does not account for cults that were anti-consumerist like the punks and hippies.

The Class Theory

This is a sophisticated left-wing theory. Youth cults assert the solidarity of young people who are victimized by society. Skinheads take aspects of working class culture to an extreme. They almost enjoy people looking down on them.

There is no simple explanation. My own research points to these general observations. Firstly, cults don't arrive fully-formed, flourish and then die. They are constantly changing and their message evolving. Secondly, teenagers only join a cult if it feels right, but most kids want to be something and cults give them something to be.

Mark the best choice.

1. In general, young people are most influenced by _____.
a) their social class b) their friends c) pop stars d) their parents
2. Which statement best sums up the Global Village Theory?
a) Young people need to be independent.
b) People of the same age unite.
c) Efficient communication leads to copying.
d) Big business causes change.
3. The Drug Culture Theory suggests _____.
a) young people are alienated c) nicotine isn't a drug
b) skinheads are relaxed d) everybody takes drugs
4. Which of the following theories does the writer seem to accept the most?
a) The Reaction Theory.
b) The Pop Idol Theory.
c) The Class Theory.
d) The Capitalist Domination Theory.
5. The writer concludes that cults _____.
a) make kids join them
b) are evil
c) provide an identity
d) stay the same

A LONELY PARADISE

The New Zealand weekend tells you a great deal about this country of three million people and ninety million sheep. The first carpenter to land in New Zealand went on strike the moment his feet touched the beach in the 1840's. "I'm on strike for a forty-hour week," he said,
 5 thinking of all those free weekends. Like so many of the settlers, he was determined not to bring the mistakes of the old world with him. A man called Charles Parnell then became the leader of a strong union movement and negotiated agreements with employers to carry out wishes like these. By 1900, workers had their free weekend, women
 10 had the right to vote and the foundations of a welfare state had been laid.

Many of the settlers were Anglo-Saxon Christians, mostly Protestants, and for them the weekend was equally important. They made sure that Sunday was a day of rest. The kiwi weekend (the kiwi
 15 bird is the national emblem of New Zealand) has not changed much since. The cities are silent, and everything is closed.

Christians influenced New Zealand life in other ways too. They felt strongly that drinking alcohol was sinful and, in the early days, the country was 'dry' (without alcohol). Until 1968, pubs closed at 6 pm
 20 and, even now, they close at 10 pm. What is more, hotels are still only allowed to sell alcohol with meals on Sundays. This is remarkable when you think how many hard-living gold-hunters came to New Zealand when gold was found in Otago and on the west coast of the South Island in the 1860's, and then stayed on. They brought a totally
 25 different set of values with them, but it was the original settlers, the Protestants and trade unionists, who laid the foundations of present-day New Zealand.

The paradoxes, or conflicting side of New Zealand life remain, however. The people are very conservative; and yet the socialist
 30 government in the early 1980's became famous for its efforts to create a nuclear-free zone. It has a reputation as a successful multi-racial society, where the island's original inhabitants, the Maoris, have always mixed peacefully with the white population. The number of Maoris has, however, gone down dramatically. When they started
 35 using European arms, tribal wars became a blood bath and, for them, European illnesses such as measles and the common cold were killers. As the Maoris slowly took to Christianity, their culture and community life suffered too, and they certainly had no say in the setting up of the State. Recently, though, things have improved and

40 steps are being taken to increase their birth rate and preserve their way of life.

The main attraction of New Zealand for visitors, of course, is its scenery. It varies as you move from a sub-tropical climate in North Auckland to the bleak cold climate of Stewart Island off the coast of the South Island. In the North Island, there are hot springs and a
45 number of active volcanoes. There have been earthquakes during which whole mountains move and ships suddenly find themselves on dry land. In the south-west of the South Island there is the Fiordland, where 6000-foot emerald-green mountains plunge vertically down
50 into the deep blue of the sea. A landscape of this kind makes men and women seem very small and insignificant and also makes communication and travel difficult. Even nowadays there is no regular ferry service between Wellington in the North Island and Christchurch in the South across the Cook Strait, as this is one of the most
55 dangerous stretches of water in the world. Wellington, the capital city, is beffeted by almost continuous strong winds as the warm air from the north of the country meets the cold air from the Cook Strait.

It is understandable that those who came from Europe settled there with the intention of creating a mini-England in the South Pacific.
60 White New Zealanders usually enjoy a life style similar to that of the upper classes in England. But now they are beginning to come to terms with a Polynesian culture and question whether they are New Zealanders or merely a group of Europeans who look on Britain as their mother country.

Mark the best choice.

1. In New Zealand,_____.
 - a) people work at the weekend
 - b) there are often strikes
 - c) no inhabitants existed before the 1840's
 - d) there are more sheep than people
2. Thanks to the union movement, in New Zealand_____.
 - a) women are entitled to vote
 - b) a welfare state is being founded
 - c) agreements with employers are negotiated
 - d) workers have to fight for free weekends
3. Due to the attitude towards alcohol in the country,_____.
 - a) Christians influenced the lifestyle
 - b) hotels do not sell alcohol except on Sundays
 - c) drinking alcohol is considered sinful
 - d) Both (b) and (c).

SHOPAHOLISM

After splashing out three hundred pounds on ten pairs of shoes, a young girl found that shopping developed into an obsession which left her with debts totaling over fifty thousand pounds. This condition, known as 'shopaholism' is on the increase all over the country. It often begins in quite a small way as it did with Diane. She used to go shopping to cheer herself up whenever she was depressed. It began with small items of underwear or bath products and make-up, and developed into buying complete outfits, and clothes she didn't need.

The current trend for making credit easily available and tempting young people to get credit cards and store cards is largely responsible, according to the government, who are trying to crack down on easy credit for under-18s. Withdrawing credit cards can help, but for serious 'shopaholics' the need to buy remains, and the habit can only be broken by treating the symptoms in the same way as a drug addict or an alcoholic.

Mark the best choice.

1. Shopaholism is _____.
 - a) having debts amounting to great sums of money
 - b) going shopping whenever you feel depressed
 - c) not being able to resist buying the items you don't need
 - d) not considered an obsession
2. Diane probably _____.
 - a) needs to buy a lot of clothing
 - b) uses credit cards for shopping
 - c) has a lot of money to spend
 - d) can't stand buying unnecessary things
3. The government _____.
 - a) are encouraging people to get credit cards and store cards
 - b) are in the trend of making credit cards easily available for under-18s
 - c) are intending to make store cards as easily available as credit cards
 - d) think easily available credit cards lead to unnecessary shopping
4. Serious shopaholics _____.
 - a) should get some kind of psychological treatment
 - b) can be considered drug addicts or alcoholics
 - c) would stop buying if they didn't have credit cards
 - d) have a habit which can never be broken

FOOD AID

- Food aid is a lifesaver in many situations, but in other cases it does more harm than good. Only 10% of all food aid sent is used for vital emergency relief. The remainder is distributed in a variety of ways, but rarely gets out to the poor. Increasingly, countries come to rely on it and are less willing to encourage their own farmers to grow food. For many communities food aid means drastically altered diets and loss of livelihoods. Locally grown food can't compete with food aid and prices fall. Low prices drive farmers out of business. The result: communities become more dependent on food from outside and less able to feed themselves. As less food is produced, less work is available. Families leave their homes and drift to the towns in search of work. There they swell the ranks of the unemployed.

Mark the best choice.

1. Generally. 90% of food aid _____.
 - a) is stored in various ways
 - b) is used in emergencies
 - c) doesn't reach the poor
 - d) is distributed to the people in need
2. Line 5, 'it' refers to _____.
 - a) the remainder
 - b) food aid
 - c) food
 - d) emergency relief
3. Food aid causes _____.
 - a) a fall in the prices of locally grown food
 - b) a healthier diet for the poor
 - c) farmers to grow their own food
 - d) a competition between governments and farmers
4. The main reason for farmers leaving their homes is _____.
 - a) the high rate of unemployment in towns
 - b) that they become dependent on food aid
 - c) the reduced food production in towns
 - d) that they are left without jobs

DISASTERS IN THE THIRD WORLD

In the Third World, droughts and floods are not the unexpected disasters we always imagine. In the Sahel region of Africa, drought is practically part of the environmental cycle, and in Asia everyone knows that floods will occur regularly. In Britain, we have a 'disaster' every year. It gets so cold that little grows for months - we call it winter. Throughout that time, supermarket shelves bulge with food and most of us manage to keep warm. The difference is that in the Third World countries the poor just can't cope. For the pastoralist, drought kills his cattle and his future. For the poor in Calcutta, the recent floods meant total destruction of homes and livelihoods. Yet, the rich in those countries remain untouched. Their land is irrigated, their homes well built, their credit is good.

Mark the best choice.

1. In the Third World countries

- a) everyone expects a severe winter to cause disasters
- b) the rich people are not affected by disasters
- c) disasters like floods and droughts are unexpected
- d) Both (b) and (c).

Which of the following statements is true?

- a) According to the author, winters in Britain are a disaster.
- b) Floods are natural in the Sahel region of Africa.
- c) The British people do not suffer a lot from winter.
- d) Both (a) and (c).

COMMUNICATION AND LANGUAGE IN THE HOME-RAISED CHIMPANZEES

Although often misunderstood, the scientific rationale for rearing a chimpanzee in a human household is to find out just how far the ape can go in absorbing the civilizing influences of the environment. To what degree is it capable of responding like a child and to what degree will genetic factors limit its development? At least six comprehensive studies by qualified investigators have been directed wholly or partly to this problem. All of these studies employed young chimpanzees as subjects and some also had in-house child controls whose day-to-day development could be compared directly with that of the experimental animal. In general, the results of this sort of research show that the home-raised chimp adapts rapidly to the physical features of the household. It does many things as well as a human child and some of them better (for example, those involving strength and climbing).

By far the greatest deficiency shown by the ape in the human environment is its lack of language ability. This eliminates the verbal communication which humans enjoy, and with it the vast amount of social intercourse and learning which are dependent upon language. Even amid human surroundings, a chimp never prattles or babbles as a young child does when beginning to talk. Although it imitates the behavior of others readily, it seems to lack the ability for vocal imitation. The neural speech centers of the brain are no doubt deficient in this respect and it is possible also that the larynx and speech organs are incapable of producing the complex sound patterns of human language. One long-time attempt to teach a home-raised chimp to pronounce human words succeeded only in getting the animal to mouth unvoiced whispers of the words 'mama', 'papa', 'cup', and 'up'.

At the same time, a chimpanzee in the home, as in the wild state, uses gestures or movements as communicating signals. This suggests the possibility of training a home-raised ape to employ a standardized system of gestures as a means of two-way communication. Such an investigation is now under way, using a gesture language devised for the deaf. Considerable progress has already been made in both the receiving and sending of gesture signals by this method. The technique seems to offer a much greater likelihood of success than other methods of intercommunication between chimpanzees and humans.

THE MOTHER OF MODERN DANCE: MARTHA GRAHAM

The name Martha Graham is practically a synonym for the still young art form known as modern dance, which dates from her pioneering days in the late 1920's. Often seen as a rebellion against the 350-year-old tradition of classical ballet, modern dance is the world's first lasting alternative to that tradition. Graham has been rightly called a genius and one of the greatest artists the United States has ever produced. Yet, as she is now over 90 years old, many people have wondered whether her legend will survive.

This question is more to the point because change has certainly been a major factor in Graham's career. In the early 1920's, Graham came to feel that the radical changes brought by World War I required a new and different style of dancing. After attending a famous dance school in California called Denishawn, she and two other dancers made a dramatic breakaway from the Denishawn dance company. In 1927, a reporter for the New York Times coined the term 'modern dance' to describe their new and innovative style.

Graham's early dances of the 1930's were stark and simple; these contrast with the poetic theater pieces of the 1940's and even more sharply with the complex dance-dramas based on Greek mythology that characterized the 1950's and 1960's. In these, several performers would each portray different aspects of the same character's personality. Often, scenes from the past, present, and future would occur at the same time, making it impossible to distinguish clearly one period of time from another.

Even the dancers themselves don't look the same as they once did. The full-bodied dancers of the past, whose weight gave them a certain power, have been replaced by thinner dancers with a lighter style. In Graham's view, these younger dancers are the product of diets and vitamins, but by using them, she has kept pace with the changing times. "The absolute thing is now," she says, "change is the only constant."

Not surprisingly, Graham's changes of direction have caused controversy, and some of her most devoted admirers have been upset by her new work that does not fit their memories of her past. She protested strongly when, in 1984, an application for grant money was refused by a foundation that felt the artistic standards of her company were not what they used to be.

Yet, despite the changes and controversy, one of Graham's beliefs has remained fixed over the years: that dance expresses emotion we often try to hide and cannot express in words. "I don't want to be understandable," she declared. "I want to be felt."

Graham's dances are open to many interpretations, and like abstract painters, she invites the viewer to bring his or her emotions to the work, to complete the picture. She remembers being influenced by Wassily Kandinsky when, as a young woman, she happened to see a painting of his - a slash of red against a field of blue - and decided, "I will dance like that."

Mark the best choice.

1. Modern dance is associated with the name Martha Graham_____.
 - a) because she was the first to dance in the modern style
 - b) as she is one of the best artists in the USA
 - c) due to her rebellious personality as a young woman
 - d) since she is the person who devised the term
2. Martha Graham_____.
 - a) changed her career following the social transformations brought by World War I
 - b) persuaded other dancers to leave the Denishawn dance company
 - c) believed that a new style of dancing was necessary to go with the changes after the war
 - d) left the dance company after she became famous enough to make changes in the world of dance
3. Graham's early dances_____.
 - a) were based on themes derived from Greek mythology
 - b) were different from the dance-dramas as they avoided complexity
 - c) were based on the different types of human personality
 - d) were influenced by the style of performers of the 1930's
4. In the plays and dance-dramas of the mid-1900's,_____.
 - a) the same artist played different aspects of a character's personality
 - b) there was only one main character
 - c) scenes from different periods took place at the same time
 - d) Both (b) and (c).
5. In the past,_____.
 - a) it was desirable for dancers to be well-built
 - b) dancers were not as powerful as they are now
 - c) dancers had a different style
 - d) Both (a) and (c).

BEING AN 'AU PAIR': SOME FACTS

The idea of working 'au pair', with full board and pocket money in return for help in the home, has been welcomed by thousands of girls coming from countries outside Britain. Many of them want to practise the English they have learned at school but cannot afford to live away from home without some kind of work to provide them with at least the necessities of life.

The aim of practising the language may be weaker in some girls than the desire to enjoy the freedom of being away from home and the excitement of living in a large city like London. The idea of working seriously for their living may be unattractive. It is experiences with the kind of girl who returns home at all hours of the night or not at all, is always complaining when asked to do anything, cannot be trusted to do the simplest thing properly, neglects her studies and gets into various kinds of trouble, that make many employers hesitate about taking a second 'au pair' into their home.

But the faults are not all on one side and many 'au pair' girls also have good cause for complaint, some of them becoming depressed and unhappy as a result. Unfortunately far too few girls who are attracted by the idea of earning their living in another land are prepared for the various difficulties that may await them.

It is essential that any girl who takes a post of this kind should be at least eighteen years old, and be sensible, practical and well able to look after herself. Wherever possible she should go to a family she knows something about possibly from a friend who has already worked with them. In any case she should make sure she has a letter from her employer stating clearly her terms of employment: exactly what she is expected to do (whether minding children or helping with light housework), how long she will be expected to work each week and her free days and half-days for attending language classes. She should be promised a single room of a satisfactory standard and she will want to eat with the family to have the opportunity of practising the language with them. Her earnings will not be high, but her employer will probably pay her return travel expenses, if the girl is prepared to stay with the same family all the time.

Two other pieces of advice are important. A girl should keep with her travellers' cheques of a sufficient value to pay for her journey home in case it becomes necessary to return urgently. In addition, she should know the addresses of one or two organisations which can give help and advice if there are problems. Several of these organisations exist in London and other large centres.

THE MENACE OF THE MICRO

Hardly a week goes by without some advance in technology that would have seemed incredible 50 years ago. Over the past 20 years, computers have completely revolutionized our lives. Yet, we can expect the rate of change to accelerate rather than slow down within our lifetimes. The next 25 years will see as many changes as have been witnessed in the past 150.

These developments in technology are bound to have a dramatic effect on the future of work. By 2010, new technology will have revolutionized communications. People will be transmitting messages down telephone lines that previously would have been sent by post. A postal system which has essentially been the same since the Pharaohs will virtually disappear overnight. Once these changes are introduced, not only postmen but also clerks and secretaries will vanish in a paper-free society. All the routine tasks they perform will be carried on a tiny silicon chip. As soon as this technology is available, these people will be as obsolete as the horse and cart after the invention of the motor car. One change will make thousands, if not millions, redundant.

Even people in traditional professions, where expert knowledge has been the key, are unlikely to escape the effects of new technology. Instead of going to a solicitor, you might go to a computer which is programmed with all the most up-to-date legal information. Indeed, you might even come up before a computer judge who would, in all probability, judge your case more fairly than a human counterpart. Doctors, too, will find that an electronic competitor will be able to carry out a much quicker and more accurate diagnosis and recommend more efficient courses of treatment.

In education, teachers will be replaced by teaching machines far more knowledgeable than any human being. What's more, most learning will take place in the home via video conferencing. Children will still go to school though, until another place is created where they can make friends and develop social skills through play.

What, you may ask, can we do to avoid the threat of the dole* queue? Is there any job that will be safe? First of all, we shouldn't hide our heads in the sand. Unions will try to stop change, but they will be fighting a losing battle. People should get computer literate as this just might save them from professional extinction. After all, there will be a few jobs left in law, education and medicine for those few individuals who are capable of writing and programming the software of the

40 future. Strangely enough, there will still be jobs like rubbish collection
and cleaning as it is tough to programme tasks which are largely
unpredictable.

If we accept that people have the need to work, then an option
might well be to introduce compulsory job sharing and to limit the
45 length of the working week. Otherwise, we could find ourselves in an
explosive situation where a technocratic elite is both supporting, and
threatened by, vast numbers of unemployed. Whether the future is one
of mass unemployment or greater freedom and leisure will depend on
how change is managed over this difficult period and how the
50 relationship between work and reward is viewed.

* dole: money given to the unemployed by the government

Mark the best choice.

1. Line 13, 'virtually*' means_____.
a) slowly b) completely c) unlikely d) partly
2. Line 16, 'obsolete' means_____.
a) rewarding b) essential c) unnecessary d) efficient
3. Line 23, 'come up before' means_____.
a) face b) cope with c) perceive d) pay attention to
4. Line 37, 'extinction' means_____.
a) contribution b) disappearance c) investment d) independence
5. The writer thinks that changes_____.
a) occur daily in our century
b) will take place faster in the near future
c) could slow down within our lifetimes
d) are less dramatic today than those in the past
6. By 2010,_____.
a) postmen will have lost their jobs
b) there will no longer be routine tasks to be performed
c) people will no longer send messages
d) more people will be working in the field of communications

DATA ENCRYPTION

In recent years, computer programmers have tried to make it easy for people to use computer systems. Unfortunately, in some situations the systems are too easy to use; they don't have enough restrictions to safeguard secret information or to prevent an unauthorized person from using that information. Therefore, several methods have been devised to prevent computer crime. One of them is data encryption. When secret personal and financial data is transmitted to and from remote terminals, it must be encrypted (translated into a secret code) at one end and decrypted (translated back into plain text) at the other. Since it is impractical to keep secret the algorithms that are used to encrypt and decrypt data, these algorithms are designed so that their operation depends on a certain data item called the key. It is the key that is kept secret. Even if you know all the details of the encrypting and decrypting algorithms, you cannot decrypt any messages unless you know the key that was used when they were encrypted. For instance, the National Bureau of Standards has adopted an algorithm for encrypting and decrypting the data processed by federal agencies. The details of the algorithm have been published in the Federal Register. Plans are under way to incorporate the algorithm in special purpose microprocessors, which anyone can purchase and install in his computer. So the algorithm is available to anyone who bothers to buy one of the special purpose microprocessors. But the operation of the algorithm is governed by a sixty-four-bit key. Since there are about 10,000,000,000,000,000,000 possible sixty-four-bit keys, no one is likely to discover the correct one by chance. And, without the correct key, knowing the algorithm is useless.

Mark the best choice.

1. Line 4, 'an unauthorized person' means a person who _____.
 - a) has no official permission to do something
 - b) has no right to restrict or control others
 - c) doesn't know anything about the subject
 - d) doesn't know how to write something
2. One can decrypt messages only if he knows _____.
 - a) all the details of the encrypting and decrypting algorithms
 - b) the key used while the messages were encrypted
 - c) that algorithms are used to encrypt and decrypt data
 - d) that the key is kept secret for security measures

3. The algorithm adopted by the National Bureau of Standards can only be used if a person_____.
- a) reads the details of the algorithm in the Federal Register
 - b) incorporates the algorithm in special purpose microprocessors
 - c) knows the algorithm
 - d) buys a special purpose microprocessor
4. As the operation of the algorithm is governed by any one of the 10,000,000,000,000,000,000,000 possible sixty-four-bit keys_____.
- a) one can discover it only by chance
 - b) discovering it by chance is not possible
 - c) one should know the algorithm
 - d) no one can get the correct key

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PESTICIDE CONTROL

- One of the reasons the use of pesticides in farming should be severely restricted and controlled is that pesticides kill 'good' and 'bad' insects indiscriminately. You may think the more dead insects the better, but some insects are actually beneficial to farmers. By spraying
- 5 their fields with toxic pesticides, they destroy the good with the bad. One example of a useful insect is the honeybee. In the United States, nearly 100 crops with a fami value of \$1 billion annually depend on the honeybee for pollination, fertilization with pollen. However, honeybees gather poison as they search for pollen. As a result, they
- 10 are steadily being exterminated by the very people they are helping. Today, there are 20% fewer honeybee colonies in the United States than there were ten years ago. Farmers agree that honeybees are the most efficient way to pollinate their crops. Yet, with their use of pesticides, they are surely eliminating their best friends.

Mark the best choice.

1. The use of pesticides should be restricted because_____.
- a) the more dead insects the better
 - b) they destroy both bad and good insects
 - c) they are used all over the world
 - d) farmers spray their fields with toxic pesticides
2. Line 10, 'exterminated*' means_____.
- a) polluted
 - b) helped
 - c) fed
 - d) killed

3. Line 13, 'Yet' means_____.

- a) Therefore b) Because c) However d) Moreover

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TOXIC CHEMICAL LEAKS

Deadly chemical leaks are much more common in the United States than most people realize. According to recent reports from the government, there are at least four serious leaks each day in the United States. The direct effects of this escape of chemicals into the environment are devastating. In the last five years, because of toxic chemical leaks, at least 135 deaths have occurred, an estimated 4,700 injuries have resulted, and nearly 200,000 people have been forced from their homes.

Mark the best choice.

1. A chemical leak (line 1) is the_____.

- a) escape of chemicals into the environment
b) preservation of chemicals in the environment
c) production of chemicals in the United States
d) consumption of chemicals in homes

2. If something is 'devastating' (line 5) it_____.

- a) escapes b) forces c) destroys d) improves

3. Which of the following is **not** mentioned as a result of toxic chemical leaks?

- a) People have died.
b) People have been injured.
c) People have realized the danger.
d) People have left their homes.

THE STORY OF THE TELEPHONE

"Mr Watson, come here please; I want you."

With these commonplace words a new era was ushered in. That sentence marked the achievement of a man who changed the face of the world in his lifetime. For the speaker was Alexander Graham Bell, and the sentence was the first to be spoken and received over the telephone.

Although telegrams had been in use for some time and the equipment was in some ways similar, the morse-code being tapped out on the same telegraph wires, it was not sophisticated enough to pick up speech. No other invention has surpassed the usefulness of the telephone.

Alexander Bell was born on March 3, 1847 in Edinburgh. His genius was inherited from his father, who was a famous teacher of elocution, and an expert on phonetics. Even as a boy his mind was inventive, but in 1870 Bell's health began to fail and there were fears of tuberculosis. So, he left his native country with his father and went to Canada. Two years later he was in Boston, where he set up a school for training teachers of the deaf and he also gave instruction in the mechanics of speech. Here he started experimenting on a machine which he believed would make the deaf 'hear'. While he was doing this, he accidentally came across the clue for the correct principles of telephony. "If," he said, "a current of electricity could be made to vary in intensity precisely as the air varies in density, during the production of sound, I should be able to transmit speech telegraphically." So, he turned to studying the workings of a deaf man's ear, and the movement of air while a sound is produced.

By February 15, 1876, Bell had filed an application for a patent for his 'improvement in telegraphy' at the United States Patent Office. Only two hours later, Elisha Gray of Chicago filed an application for almost the same invention! The great Edison, A.E. Dolbear and Daniel Drawbraugh were all working in the same field: all claimed the invention or part of the invention of the telephone. The great telephone war was on! There was hardly any time to spare.

Bell and his assistant, Watson, hid themselves in two rooms of a cheap Boston boarding house, rigged up apparatus and worked day and night trying to transmit and receive sentences spoken by the human voice over the telephone. On the afternoon of March 10, 1876, Watson was in the basement with the receiver to his ear. Suddenly he started. Words - real distinguishable words - had come through at last. Sharply and clearly the sentence came through, "Mr Watson, come here, please; I want you."

Watson flung down the receiver, rushed up the stairs like a schoolboy, clearing them two at a time, and burst into Bell's room, shouting, "I heard

you; I could hear what you said!"

That year Bell exhibited his telephone at the Centennial Exposition at Philadelphia. Nobody thought much of the invention at first, until Don Pedro, the Emperor of Brazil, picked up the receiver. Bell at the other end of the wire, recited the famous soliloquy from 'Hamlet', "To be or not to be....". "My God!" cried the Emperor, "It speaks!" The telephone was from that moment given pride of place in the exhibition. Bell soon withdrew from active work on the telephone and settled down in a fine country home at Baddeck, Nova Scotia and devoted himself to invention. He interested himself in dynamic flight, sheep breeding and a universal language based on the phonetics of the English language. He perfected a hydroplane and claimed he had invented a breathing apparatus for explorers and travellers through the deserts. Although nothing has come of any of these inventions, work is still being carried out on the telephone.

Nowadays, of course, the telephone has developed in ways that Bell would never have imagined. Radio telephones, car telephones, international link-ups via satellite have all combined to allow immediate, clear communication between any two people anywhere in the world. But modern technology has not really done anything but improve on Bell's original invention. It was Bell who made it possible for two people to talk to each other when separated by a great distance.

Years after Bell's invention, there is a story told of a woman whom he met at a social gathering. When she was introduced to the great inventor, she expressed pleasure in meeting him and then said smilingly, "But often I wish you had never been born." Bell looked startled and hurt and then he smiled and said, "I sympathise. I never use the beast."

The most extraordinary thing is that Bell hated the telephone and he hardly ever used it. He stuffed his telephone bell with paper, to prevent it from interrupting his work.

Mark the best choice.

1. The words "Mr Watson, come here please; I want you," were important because
 - a) they were the words of the first telephone call
 - b) Bell wanted to tell Watson about his new invention
 - c) they were spoken by Alexander Graham Bell
 - d) they were the words of the first telegram
2. Telegrams were similar to the telephone in that _____
 - a) they had been in use for some time
 - b) messages were sent by the tapping of the morse-code
 - c) both systems used the same wires
 - d) they were not sophisticated enough to pick up speech

TEENAGE VANDALISM

The image of the teenage vandal as an isolated, lonely, anti-social figure has been shattered by a school survey which shows that most hooligans are regular attenders at youth clubs and enjoy going to an organised disco. The profile of a typical vandal built up by teachers and police in Blyth, Northumberland, paints a picture of a sociable youth who is likely to be an enthusiastic cyclist and a football fan.

Nearly two-thirds of 2,500 children who answered a questionnaire in Northumberland secondary schools admitted acts of vandalism. Most blamed unemployment and also their parents for not being strict enough. Many said they would commit vandalism again.

In a preliminary analysis of 1,600 anonymous replies, Northumbria police and the Keep Britain Tidy Group - who commissioned the survey - found that 84 per cent of the teenagers thought there was little or nothing wrong with dropping litter. Almost two-thirds felt the same about damaging garden plants, 40 per cent saw "little or nothing wrong" with torturing a pet and 6 per cent felt that there was little or nothing wrong with setting fire to a building.

Most children said the answer to vandalism was to give children more to do, while some thought inflicting punishments of all kinds and having more police on the streets could be the answer. About half said they were most likely to listen to their parents, but only eight per cent said they would listen to a youth club leader.

Mark the best choice.

1. Most people think that teenage vandals _____.
 - a) are fond of cycling and football
 - b) attend youth clubs and go to discos
 - c) are lonely and anti-social people
 - d) cause problems for the police and teachers
2. The questionnaire shows that _____.
 - a) many of the children regret committing vandalism
 - b) parents should be less strict towards their children
 - c) most of the children have committed vandalism
 - d) vandalism is not as serious a problem as people think
3. According to the results of the survey, which of the following is the least acceptable act of vandalism?

a) Dropping litter.	c) Torturing a pet.
b) Damaging garden plants,	d) Setting fire to a building.

4. According to most of the children taking part in the survey,_____.
- a) a youth club leader can persuade teenagers not to commit vandalism
 - b) a change in parental attitude would not stop vandalism
 - c) vandalism can only be stopped by inflicting strict punishment
 - d) vandalism can be stopped by getting children involved in various activities

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LANGUAGE LEARNING

Once you realise that no method of language teaching is going to give you the ability to speak a foreign tongue to business standards in a few weeks, the selection of a system of teaching becomes a simple calculation of time, money and need.

There are three levels of language ability - tourist, social and fluent - and the gaps between them are huge. Most of us are aware that the schoolboy German that gets us into hotels and through supermarkets is not sufficient to keep up a pleasant dinner party conversation. Similarly, the ability to join in such a conversation, which is about as much as most of us could hope to achieve, is a long way from a full intelligent grasp of the language and its culture.

For a quick introduction to the basics, I prefer the cassette/book system. Language books alone cannot offer the necessary pronunciation skills, skills which you are going to need in order to understand, for example, the train announcements on the Moscow underground. Cassettes, however, have proved a great aid for the language student.

The essential requirement when learning a language, even at that level, remains effort. The more willingness the student brings to the task, the easier the course will be. For European languages that effort comes a little easier. The Londoner learning French or the Parisian learning English can readily find newspapers, radio stations and restaurants where the language is used and can thus become familiar with that culture before his visit. If the tongue is to be Tamil or Serbo-Croat, the task is a little more difficult. With languages such as French and German, it is also possible to listen to, or record, the BBC Schools programmes, which are always helpful.

There is no question, however, that the best teaching, and obviously the most expensive, is in the classroom, the very best being a one-to-one teaching basis, that is, private tutoring. For this, you will be paying a few hundred pounds per week and it is important to check carefully on the chosen place of learning. Language teaching attracts some dishonest establishments. Watch out for the school that promises an ability to 'reach the moon' after a couple of hours in the language lab!

These two letters appeared in a radio and TV magazine.

Sir,

Last Saturday I watched the TV programme on the latest Grand Prix motor race and noticed how much advertising there was. In particular, the leading car (and the one that eventually won) was almost constantly on the screen: it was painted to look like a packet of well-known cigarettes. Not only that, but the car was, on more than one occasion, referred to by the reporter not by the name of the driver or the motor company, but by the name of the product.

Since the football team that I support is not allowed to wear shirts advertising anything when their matches are being televised, isn't this a case of 'double standards'? The rule preventing sportsmen and sportswomen from carrying advertisements on television is a good one. Keep it and enforce it. To take one example, what is the effect, I wonder, on the young and old, of the apparent connection between cigarette smoking and an exciting sport like motor-racing?

L.H. Gray

Sir,

What a ridiculous situation our television companies find themselves in with regard to sports and advertising!

I watched a televised football match in which the players did not carry any advertisements on their shirts, and yet there was advertising all around. (Do the TV producers think we viewers are blind or something?) And when a well-known international player was interviewed after the match, both he and the interviewer referred by name to the cosmetics firm that finances the team! And as if that were not enough, the sports item that followed was the National Bank Golf Tournament.

Advertising is all around us every day. Long live advertising, I say, and let the television companies recognise it and allow football players, athletes, racing drivers and others to wear sponsors' advertisements. At least we would all know where we were!

(Mrs.) R.P. Laing, Bristol

Mark the best choice.

1. L.H. Gray would like to see_____.
 - a) advertising banned from televised sport
 - b) smoking made illegal
 - c) more programs on motor racing
 - d) less sport on TV
2. Mrs. Laing believes that_____.
 - a) sportsmen on TV should be allowed to have advertisements on their clothes
 - b) advertising cigarettes should be banned at football matches
 - c) advertising on TV should be forbidden
 - d) golf tournaments should not be financed by banks
3. Which of the following do both L.H. Gray and Mrs. Laing agree on?
 - a) Sportsmen should be allowed to advertise on TV.
 - b) TV sports should allow advertising except for drink and cigarettes.
 - c) TV companies must get rid of their 'double' standards.
 - d) Reporters should be allowed to advertise.

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WIND POWER

In its search for alternatives to fossil-fuel energy sources, science is looking back in history at the windmill. Small windmills once were seen everywhere in rural America, but most were abandoned with the emergence of rural electrification programs in the 1930's. Now energy shortages and rising petroleum prices have brought renewed interest in putting the wind to work. Some scientists estimate that with enough investment in research and development, windmills could supply 20 per cent of U.S. electrical needs by the year 2000.

The Sandia Laboratories in New Mexico are testing an altogether different device that looks more like a giant eggbeater than a conventional windmill. Its principal advantage is that its symmetrical shape catches wind from any direction.

All designers of new windmills face one very old problem, however: what to do when the wind dies. One solution would be to use windmills to pump water uphill into storage reservoirs. When the wind stops, the water would be released to drive hydraulic turbines.

Meanwhile, U.S. ranchers and farmers in the southwest are so eager to

utilize wind power that New Mexico State University is offering a special course in the operation and maintenance of windmills built a generation ago.

Mark the best choice.

1. Scientists are trying to make use of wind power by means of windmills because
 - a) they were abandoned about 50 years ago
 - b) there is a need for alternatives to fossil-fuel energy sources
 - c) they were all small and used before the 1930's
 - d) they try to catch the wind from any direction
2. The problem faced by the designers of new windmills _____.
 - a) is to pump water into storage reservoirs
 - b) has no satisfactory solution
 - c) is what to do when there is no wind
 - d) can be solved by hydraulic turbines
3. Which of the following statements is true?
 - a) The device which is being tested in New Mexico is not a satisfactory one at all.
 - b) 20% of the U.S. total energy need can be generated by windmills.
 - c) People who are interested in making use of the wind are given a special course in operating new windmills.
 - d) Although there are problems to be faced, windmills can be useful after a certain period of research and development.

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HYDRO-ELECTRIC AND TIDAL POWER

In addition to the established energy sources such as gas, coal, oil and nuclear, there are a number of other sources that we ought to consider. Two of these are hydro-electric and tidal power.

These two sources are similar in that they are both renewable. However, hydro-electric power is more widely used than tidal. In fact, a substantial amount of electricity is already produced in HEP stations world-wide, whereas tidal stations are still in the very early stages of development.

As far as geographical location is concerned, HEP schemes are to be found on lakes and rivers, while tidal schemes are constructed only in estuaries where tidal variation is great. Unfortunately, these are few in number. At present HEP stations are found mainly in Norway, Canada, Sweden and Brazil, whereas tidal plants are in operation in France, the CIS

and China.

As regards capital outlay, both require very high investment. On the other hand, generating costs are quite low in both cases. In fact, a large-scale HEP plant is capable of producing power more cheaply than conventional sources, such as coal, oil and nuclear plants. Tidal power also compares favourably with nuclear and oil generated electricity, in terms of production costs. Like HEP stations, tidal barrages have a long life-expectancy. It is estimated that they can operate for over 100 years. With respect to continuity of supply, tidal stations differ from HEP schemes in that they often can only supply power intermittently. HEP stations, however, provide a constant supply of electricity.

Turning now to environmental impact, tidal plants do not seem to create too many problems. In contrast, HEP stations often involve the flooding of large amounts of agricultural land, the destruction of ecological habitats, and may even cause a change in the climate of the area.

Both tidal power and HEP have one big disadvantage in that if the demand for power exists at any distance from the generating plant, transmitting the electricity is expensive.

Mark the best choice.

1. Hydro-electric power stations are used more widely than tidal-power stations because they_____.
 - a) cost less
 - b) are renewable
 - c) are geographically less limited
 - d) are still in the early stages of development
2. Which of the following statements is true?
 - a) HEP stations can produce cheaper power than conventional plants but tidal power plants cannot.
 - b) The capital and generating costs of hydro-electric and tidal power plants are both low.
 - c) HEP stations are not likely to operate for over a hundred years.
 - d) Tidal stations are not capable of supplying a continuous flow of electricity.
3. With the construction of tidal plants,_____.
 - a) the climate of the area does not necessarily change
 - b) the ecological habitats are often destroyed
 - c) transmission costs of electricity are reduced
 - d) flooding of agricultural lands cannot be prevented

GREGORY MENDEL

An Augustinian monk named Gregory Mendel was the first person to make precise observations about the biological mechanism of inheritance. This happened over a hundred years ago in an Austrian monastery, where Mendel spent his leisure hours performing experiments with pea plants of different types. He crossed them carefully and took notes about the appearance of various traits, or characteristics, in succeeding generations. From his observations, Mendel formed a set of rules, now known as the 'Mendelian Laws of Inheritance', which were found to apply not only to plants but to animals and human beings as well. This was the beginning of the modern science of genetics.

Mark the best choice.

1. When did Mendel perform his experiments?
 - a) In ancient times.
 - b) In the 1860's.
 - c) When the modern science of genetics was introduced.
 - d) At the beginning of this century.
2. Mendel made observations on plants_____.
 - a) because his education was on this subject
 - b) for he enjoyed doing experiments in his free time
 - c) so that he could earn money
 - d) Both (a) and (c).
3. Which of the following can the 'Mendelian Laws of Inheritance' be applied to?
 - a) Plants.
 - b) Animals.
 - c) Human beings.
 - d) All of the above.

ANTI-SMOKING CAMPAIGNS

Stopping cigarette smoking has become a big problem for all governments. In democratic countries, the economic strength of the tobacco industry is so great that measures taken by governments to protect the rights of nonsmokers cannot be applied effectively. In
5 some undemocratic countries, on the other hand, governments cannot be trusted and they lack the motivation to deal with the problem. And under any political system, social conditioning and chemical habituation make banning tobacco a formidable task and one that would take a long time. Yet, current information campaigns are failing
10 as worldwide use increases faster than the population.

Totally banning cigarette smoking so far has been unsuccessful in all countries. An alternative approach includes either the prohibition of smoking in the workplace and public buildings or the strict limitation of smoking to specified areas. This movement may be the
15 greatest success of the information campaign against tobacco. Its leaders insist that despite the continued sale, advertising, and use of tobacco, nonsmokers have every right not to be exposed to the carcinogens, carbon monoxide, and irritants in tobacco smoke. Such a campaign can have three important effects.

First, by banning the use of tobacco from places where nonsmokers would be exposed, thousands of lives may be saved. Second, forcing smokers to give up their habit while in the presence of nonsmokers will provide them with an added force to quit. If smokers must get
20 through working days without smoking, then they are more likely to be able to quit completely. And third, by stigmatizing tobacco use as dangerous and antisocial, the campaign for nonsmokers' rights can accomplish a goal of all anti-smoking information campaigns: to make smoking socially unattractive.

Interestingly, nonsmokers have important supporters in the workplace: their employers. Companies, at least in the United States,
30 are rapidly realizing that most of their employees do not smoke and do not like to breathe the smoke of others, and that smokers cost employers money. Surveys indicate that inefficiency and ill-health attributable to smoking waste about 7% of a smoker's working time.
35 Smokers also add to insurance and cleanup costs, and lower the morale of nonsmoking employees.

LONELINESS PREVAILS

- According to a survey specially commissioned for *The Sunday Times Magazine*, approximately 25 per cent of the population are lonely. Elderly people, particularly those who move to a new area on retirement, may be isolated from their families and friends. Illness, disability and fear of going out alone also combine to turn many pensioners into prisoners in their own homes. Teenagers also find it difficult to make friends within their age group because their natural shyness and self-consciousness may make them awkward in the company of their peers and the opposite sex. Single parents feel cut off from a couple-orientated society. Divorce can be shattering to the self-respect. Divorced people may miss the companionship of even the most unsatisfactory marriage as, of course, do the widowed. With so many social contacts being made through work, unemployment can also lead to loneliness.

Mark the best choice.

1. Old people who _____ may feel particularly lonely.
 - a) have been to prison
 - b) have to live on low incomes
 - c) are not healthy enough to move around easily
 - d) are in a position to start a new career
2. Line 9, 'peers' means _____.
 - a) older people
 - b) other young people
 - c) confident people
 - d) experienced people
3. The widowed _____.
 - a) may miss the company of the dead partner even if their marriage was not happy
 - b) won't feel as lonely as the divorced in a couple-orientated society
 - c) probably had the most unsatisfactory marriages and lost their self-respect
 - d) are different from divorced people in that they don't need companionship

THE ORDER OF INVENTIONS

The order in which inventions are made is very important, much more important than has ever been realised, because we tend automatically to think that later inventions are better than earlier ones. A moment's thought will show this is not so . If, for example, a solution to today's urban traffic problems was proposed in the shape of a small man-powered two-wheeled vehicle which would make the motor car look like a complicated, inefficient and over-powered device, we would greet it as a great technological breakthrough. "The bicycle makes the car obsolete!" we would cry. Unfortunately, the bike came first, so we shall always unconsciously see it as a simpler version of the car.

Other things which may have been invented too early are the radio and the railway train. Consider also the zip. Zips represent a technological advance on buttons, being faster and more complete. However, they are also more likely to come apart, break, malfunction, stick and catch. Buttons can only go wrong if the thread is faulty. Even then, buttons can be mended by the user. Zips rarely can.

Mark the best choice.

1. Line 4, 'this is not so' means that _____.
 - a) we should not think automatically
 - b) the order of inventions is not important
 - c) we should not accept inventions easily
 - d) later inventions are not always better than earlier ones

2. If the bicycle were invented now, _____.
 - a) people would not welcome it as they did in the past
 - b) people would still prefer cars to bicycles
 - c) it would be seen as an earlier version of the car
 - d) the car would appear unsuitable for its purpose

3. Although buttons were invented earlier than zips, _____.
 - a) they are still more reliable
 - b) they are faster than zips
 - c) they represent a technological advance
 - d) they malfunction easily

INTELLIGENCE

When we talk about intelligence, we do not mean the ability to get a good score on a certain kind of test, or even the ability to do well in business; these are at best only indicators of something larger, deeper, and far more important. By intelligence we mean a style of life, a way of behaving in various situations, and particularly in new, strange, and puzzling situations. The true test of intelligence is not how much we know how to do, but how we behave when we don't know what to do.

The intelligent person, young or old, meeting a new situation or problem, opens himself up to it; he tries to perceive everything about it. Besides, he thinks about it instead of about himself or what it might cause to happen to him; he grapples with it boldly, imaginatively, resourcefully, and if not confidently, at least hopefully. If he fails to master it, he looks without shame or fear at his mistakes and learns what he can from them. This is intelligence.

Mark the best choice.

1. According to the first paragraph, intelligence_____.
 - a) can be described as a rich, new and surprising life style
 - b) is basically the ability to cope with new or confusing situations
 - c) is indicated by success in school or business
 - d) can be measured by the amount of knowledge we have
2. We are told that intelligent people_____.
 - a) carefully consider what will happen to them in a difficult situation
 - b) avoid being involved in a new situation
 - c) successfully overcome every problem they are faced with
 - d) learn from their mistakes even if they fail

YOUR PERSONALITY AND YOUR HEART

Cardiologists divide us into two types according to how our personality affects our heart. Type A individuals are highly competitive, fast acting, rapid talking, and thus more exposed to stress whilst B types drown in the milk of human kindness and are indifferent to the passage of time. It is an uncomfortable fact that A types die twice as frequently from heart disease as B types, even when the risks of cigarettes, alcohol and cream cakes are taken into account.

Personality is genetically determined; that is, A-type parents usually get A-type children. But the environment has a more important effect. One place where children soak up A-type behaviour is school, which is, by its very nature, a highly competitive institution. Too many schools adopt the 'win at all costs' principle and measure their success by sporting achievements. What I can't forgive actually is not the current emphasis on making children compete against their friends or against the clock, but the system in which competitive A types are provided with more opportunity to succeed than their B-type fellows.

By far, the worst form of competition in schools is the disproportionate emphasis on examination. Rather than concentrating on those things they do well, pupils are forced to compete by exams. For those who will inevitably fail, however, this kind of competition is definitely harmful.

Obviously, it is neither practical nor desirable that all A youngsters change into B's. The world needs both types, and schools have an important duty to try to fit a child's personality to his possible future employment. If the preoccupation of schools with academic work was lessened, more time might be spent teaching children better values. Perhaps selection for the caring professions, such as medicine, should be made not only by good grades but also by such considerations as sensitivity, kindness and honesty.

Mark the best choice.

1. Type B individuals suffer less from heart disease _____.
 - a) because they are aggressive and competitive
 - b) although they lead more stressful lives
 - c) unless they smoke, drink or eat as much as type A's
 - d) even if they have unhealthy eating and drinking habits

THE FLEA MARKET

On any weekend at sunrise, while most of the country still sleeps, vans, pickup trucks, campers, and cars crammed with every conceivable item gather in empty parking lots and fairgrounds across the U.S. By noon, the scene overflows with thousands of people who have come to bargain and look around this mad carnival called the flea market.

People have traded and bartered for centuries. Whatever else the flea market may appear to be, its purpose is the sale and exchange of goods. Whether they are knowledgeable collectors or just plain bargain hunters, people are drawn to the flea market by the enormous amount and variety of merchandise offered. The possibility of finding something truly valuable before anybody else does makes shopping at a flea market a treasure hunt.

For many buyers, the ritual of bargaining at a flea market is more fun than the bargain itself. It's not the money they save that gives them a feeling of accomplishment; it's the satisfaction of playing an ancient game. Satisfaction also comes from the nature of a flea-market exchange. After you negotiate your price, taking your time, it is 'cash and carry' - the dealer pockets your money, you go home with your purchase, and that's that. You got what you wanted, and the dealer got what he or she wanted. In today's world of credit cards, the flea market takes you back to a time when life was simpler and money had more meaning.

The people who set up stalls at the flea market, vendors, may have nothing in common during their weekday lives, but over the weekend their diversity becomes community. A Chinese couple sells embroidered slippers next to a punk teenager displaying cat's-eye sunglasses across from another dealer's plastic potted plants. On the street, they would probably never talk to each other. Here they do.

What do these 'fleas' have in common here? Perhaps it is a belief in getting ahead, in becoming economically self-sufficient, and in taking control of their own lives. Vendors willingly give up the security of a nine-to-five job in exchange for freedom: freedom from rigid working hours; freedom from the world of inflation and taxation; freedom to choose when, where, and what they will sell; freedom to be what they want to be.

SLEEP LOSS

It was civilization that created the dilemma of sleep loss. The sun presumably dictated the habits of ancient people: when it was up they were awake, and when it went down they slept. The discovery of fire probably allowed the first change in that pattern. As flames lit the dark, surely some adventurous souls delayed bedtime. But sweeping change came only a century ago with the introduction of the light bulb. U.S. inventor Thomas Edison's glowing device permitted cheap, safe and efficient illumination throughout the darkest nights. By the end of World War II, Americans were sleeping about eight hours a night.

Today new cultural and economic forces are combining to turn the U.S. into a 24-hour society. Many TV stations, restaurants and supermarkets operate through the day and night. Business is increasingly plugged into international markets that require round-the-clock monitoring and frequent travel across time zones.

But not all sleeplessness is caused by hectic schedules. Clinical sleep disorders are a major contributor to the national drowsiness. Many Americans suffer from nocturnal myoclonus, a condition in which their legs twitch throughout the night and break up their sleep. About 3 million adults, mostly overweight men, are afflicted with sleep apnea. In this disorder, muscles in the upper airway regularly sag and fail to keep the passage open. The struggle to take in air can result in snoring that rivals a jackhammer, though sufferers are often oblivious. "A person with apnea might not even be aware that he woke up 500 to 1,000 times last night because the arousals are so brief," says psychologist Thomas Roth, Chief of Henry Ford Hospital's Sleep-Disorder Center in Detroit. Both apnea and myoclonus can be treated, once diagnosed.

By far the most common complaint resulting in lack of sleep is insomnia. About a third of all Americans have trouble falling asleep or staying asleep - problems that result in listlessness and loss of alertness during the day. Most of the time the distress is temporary, brought on by anxiety about a problem at work or a sudden family crisis. But sometimes sleep difficulties can extend for months and years. Faced with a chronic situation, insomniacs frequently medicate themselves with alcohol or drugs. Doctors warn that in most cases sleeping pills should not be taken for longer than two or three weeks. Such drugs can lose their effectiveness in time, and it takes larger and larger doses to work. People run the risk of becoming dependent on the pills.

Because so few studies have been done, scientists cannot make definitive comparisons between American sleep patterns and those of other countries. But many researchers believe that all industrialized nations are experiencing

DANGEROUS WASTE

Most industries produce waste products which can be difficult or dangerous to dispose of. Coal and oil fired power stations produce enormous amounts of waste. A large coal power station will send 17 million tons of flue gas out of its chimney each year. It will also make around 2 million tons of ash, a fine white powder which is difficult to dispose of. Nuclear power stations also produce waste. The problem is that this waste is radioactive, and is dangerous unless kept safely away from living creatures.

High-level waste is the radioactive 'ash' from used nuclear fuel. This waste must be prevented from mixing with the environment until the radioactivity has decayed to safe levels. Radioactivity, unlike other poisons which are with us forever, disappears with time. So the highly radioactive 'ash' begins to lose its activity as soon as it is taken out of the reactor. It is normally kept at the bottom of a deep tank of water at the power station for several months. At the end of a year 90 per cent of the radioactivity is gone. At the end of 10 years 99 per cent would have ceased to exist. But what's left of this high-level waste is still very dangerous and will go on being so for thousands of years. However, the volume is not great, which makes storage comparatively simple. The total amount produced for the entire nuclear programme since 1956 would take up about the space of a pair of semi-detached houses - less than 1,500 cubic metres.

Intermediate-level wastes are far less radioactive. Currently, they are contained in solid concrete stores. The quantities involved are larger - about 2,500 cubic metres each year. There are no technical or safety-related advantages in storing these wastes for long periods. Plans are being developed to dispose of these wastes either deep underground or deep under the seabed. In the meantime, they will be specially encapsulated in cement to make them easier to store and handle.

Low-level wastes consist of gases and liquids as well as solid laboratory refuse - protective clothing, gloves, used syringes and tissues. Much of the radioactive waste from hospitals and industry is low-level. The gases and liquids can, with government authorisation, be released directly into the environment, where they quickly become diluted to a level that presents no appreciable risk. At present, the low-level solid wastes are disposed of in a shallow disposal site at Drigg, Cumbria. In the longer term they can be put in the same repository as the intermediate-level wastes - either deep underground or under the seabed. Our only 'vested interest' in nuclear waste is to dispose of it without harm to the public. Surely the most balanced approach you could wish for.

LET YOUR MIND WANDER

Until recently daydreaming was generally considered either a waste of time or a symptom of neurotic tendencies, and many psychiatrists claimed that habitual daydreaming was evidence of maladjustment or an escape from life's realities and responsibilities. As with anything carried to excess, daydreaming can be harmful when 'fantasy addicts' withdraw from people and can no longer cope with reality. Then their mental health is impaired.

But such extremes are relatively rare, and there is a growing body of evidence to support the fact that most people suffer from a lack of daydreaming rather than an excess of it. We are now beginning to learn how valuable it really is and that when individuals are completely prevented from daydreaming, not only are they less able to deal with the pressures of day-to-day existence, but also their self-control and self-direction become endangered.

Daydreaming, science has discovered, is an effective relaxation technique. Results of experiments conducted by psychotherapists indicate that daydreaming significantly contributes to intellectual growth, powers of concentration, attention span, and the ability to interact and communicate with others.

Contrary to popular belief, incessant and conscious effort at solving a problem is, in reality, one of the most inefficient ways of treating it. Effective solutions to severe problems frequently occur when conscious attempts to solve them have been suspended. Inability to relax, to let go of a problem, often prevents its solution.

A life lived without fantasy and daydreaming is a seriously impoverished one. Each of us should put aside a few minutes daily, taking short 10-15 minute vacations. Daydreaming is highly beneficial to your psychological and mental well-being and you'll find that this modest, inexpensive investment in time will add up to a more creative, more imaginative, more satisfied, and more self-fulfilled you. It offers us a fuller sense of being intensely alive from moment to moment, and this, of course, contributes greatly to the excitement of life.

Mark the best choice.

1. Today it is believed that _____.
 - a) daydreaming is an escape from life's realities and responsibilities
 - b) symptoms of neurotic tendencies* are due to occasional daydreaming
 - c) mental health won't be impaired unless daydreaming becomes an addiction
 - d) anything carried to excess can be the cause of habitual daydreaming

THE BEAUTY OF NUMBERS

The beauty of numbers is in their precision . They express exactly how much, neither more nor less. Numbers reveal relationships more clearly and more accurately than any other language. Once numbers are correctly established, they eliminate all differences of opinion.

5 Eight fingers are more than seven fingers.

Suppose that we are interested in contrasting employment practices in economically developed countries with those in underdeveloped countries. The United States of America and the People's Republic of China are good examples. A study of these two countries reveals a
10 startling set of numbers.

Distribution of farm employment is by far the most surprising. Seventy-five per cent of all the people gainfully employed in China work on farms; only 4 per cent work on farms in the United States. This is a fundamental distinction, for it tells us something of the effort
15 necessary to stay alive in these two countries.

Farm employment in China is so high that only 15 per cent of the workers are available to carry on trade, commerce, manufacturing, and other special services. The same group of occupations in the United States is carried on by 85 per cent of the work force.

20 These figures indicate that a well-developed economy places great emphasis on manufacturing, trade, commerce, and services. The raw materials on which these functions are based are obtained efficiently with a small manpower commitment. Underdeveloped countries exhaust their manpower resources in the effort to obtain enough food.
25 The people who make life comfortable for the rest of us are the doctors, lawyers, preachers, teachers, artists, hairdressers, repairmen, cobblers, entertainers, civil servants, and military personnel. Imagine the price paid by the Chinese with only 4 per cent of their gainfully employed population working in service jobs! The same category
30 makes up 24 per cent of the gainfully employed population of the United States.

That is quite a difference. Without manufacturing, trade, and commerce there can be little in the way of consumer goods available to the people. The United States was in this position in the eighteenth
35 and early nineteenth centuries. At that time, the population was centered on the farms and forced to make many things for themselves. This is exactly what we saw in China as the 1970s came to a close. Science, aided by a new technology, especially the availability of abundant farm machinery, will put an end to the China we once knew.

- 40 The lesson here is not really one in economics. It rests with an understanding of numbers. Counting things gives reliable information and permits us to draw reliable conclusions. There is a formal beauty and uncompromising power in measurement.

Mark the best choice.

1. Line 1, 'precision' means _____.
a) exactness b) establishment c) difference d) elimination
2. Line 14, 'for' means _____.
a) however b) moreover c) because d) therefore
3. Underdeveloped countries _____.
a) can get raw materials with little manpower
b) emphasize manufacturing, trade, commerce and services
c) employ only 4 per cent of their population in service industries
d) use a lot of manpower to get enough food
4. Which of the following is true?
a) China has been able to satisfy all its basic needs through food production.
b) In a few years, China will produce more farm products than the United States.
c) Science and new technology will change the job distribution in China.
d) The year 1970 was a turning point for the Chinese economy.
5. Which of the following is **not** true?
a) Correctly established numbers eliminate all differences of opinion.
b) In the eighteenth century, most Americans lived on farms.
c) More consumer goods are available in well-developed economies.
d) Twenty-four per cent of American workers work on farms.
6. The purpose of this text is to show that _____.
a) the U.S. is in a better economic situation than China
b) the information provided by numbers is dependable
c) many sciences, such as economics, are based on numbers
d) the economy of China is based on agriculture

CRITICAL THINKING IS WELCOME

An increasing number of teachers, from kindergarten through college, have altered lesson plans to include the art of thinking. Many others are being trained so that they can shift the classroom emphasis away from just giving pupils information and move toward making them think about the issues raised by that information. Educators say that students have become obsessed with getting the right answers on tests and so they are weak at analyzing what they are learning and at grasping implications. These weaknesses, the educators say, will affect the students' ability to make future decisions about career and marriage, what candidates to vote for and what products to buy. "It's not just the ability to remember things^and feed them back on tests that detennines how well you're going to do in life," said Dr. Heidi Jacobs, a professor at Teachers College at Columbia University. "It's the ability to solve problems and reflect and to, in fact, think critically."

Unfortunately, about 80 per cent of class questions, according to Dr. Jacobs, are designed simply to have students recall information. Moreover, the pressure to raise student performance on standardized tests created an exaggerated stress on memorized information. In reaction to this, more teachers have begun to support the movement to teach critical thinking in schools. While schools and teachers have always assumed that thinking was part of their mission, educators are now making the teaching of thinking skills a more formal part of their programs. For example, there has been a dramatic push in the last few years by at least 28 states and hundreds of schools to re-train teachers and revise curriculums.

In the early 1980's, reports by several influential commissions claimed that it was vital to improve reasoning abilities for a population that would have to adjust to sweeping changes in technology in a more competitive world. Since 1985, the California State University system has required its one million students to take a course in critical thinking before they can graduate. New York City's Board of Education created a Reasoning Skills Unit to prepare analytical questions to be used by the teachers of various subjects. Such questions will encourage students to think about what they have been taught and use the information in a more practical way. Students are now being taught analytical skills such as inferring explanations, supporting an argument, judging the credibility of a source, verifying an observation, identifying underlying assumptions, and designing experiments so that a particular variable can be controlled.

Articles on teaching the concept of 'critical thinking' have been published in educational journals since the late 1970's. Starting in the 1980's, supporters have set up three professional associations and currently publish six journals. In fact, the critical-thinking movement
45 has become so strong that it now has three factions: teachers who say thinking should be taught separately, those who argue that it should be only integrated into the normal curriculum, and those who believe that both these approaches are equally applicable.

Even in teaching mathematics, some supporters suggest that
50 instructors move away from the assumption that there is always one correct answer. Instead, they say, students should be encouraged to explain how they arrived at a different answer. Mr. Ewen, a math teacher, said he could accept 6 as a plausible answer to "What is 29 divided by 5?" if the student provided a reasonable explanation. A
55 student, he said, might calculate that 29 chips divided into piles of 5 each will yield 6 piles, even though one of the piles is shorter than the others. "The greatest discoveries," he added, "have come from people who have looked at a standard situation and seen it differently."

Mark the best choice.

1. Until recently, _____.
 - a) there was an attempt to make pupils analyze the information given to them
 - b) lesson plans were altered so as to include the art of thinking
 - c) the job of a teacher involved teaching the skills of thinking
 - d) education aimed mainly at getting the pupils to give correct answers on tests
2. To make healthy decisions in the future, students should _____.
 - a) learn how to do well on tests
 - b) be able to remember things well
 - c) learn to analyze what they learn
 - d) be able to solve math problems easily
3. More teachers now support the movement to teach critical thinking in schools
 - a) to increase student performance on standardized tests
 - b) as they consider thinking as an important part of their job
 - c) although success in life does not depend on how well you do on an exam
 - d) to show their reaction to the unnecessary emphasis on memorizing

LEARNING TO READ

- A child takes great pleasure in becoming able to read some words. But the excitement fades when the texts the child must read force him to reread the same word endlessly. Word recognition - 'decoding' is the term used by educational theorists - deteriorates into empty rote learning when it does not lead directly into the reading of meaningful content. The longer it takes the child to advance from decoding to meaningful reading, the more likely it becomes that his pleasure in books will evaporate. A child's ability to read depends unquestionably on his learning pertinent skills, but he will not be interested in learning basic reading skills if he thinks he is expected to master them for their own sake. That is why so much depends on what the teacher, the school, and the textbooks emphasize. From the very beginning, the child must be convinced that skills are only a means to achieve a goal, and that the only goal of importance is to become literate; that is, he should start to enjoy literature and benefit from what it has to offer.

Mark the best choice.

1. Line 2, 'fades' probably means _____.
a) increases b) disappears c) reaches the top d) starts
2. Line 9, 'pertinent' probably means _____.
a) related b) separate c) interesting d) boring
3. From the writer's point of view, we may conclude that a child who reads mainly by rote decoding _____.
a) will learn how to read intelligently
b) will never learn how to read
c) will not gain much joy and satisfaction from reading
d) will come to enjoy literature later in life
4. We may conclude from this selection that, as a skill, decoding is _____.
a) worthless
b) important only as a part of a larger effort to enjoy literature
c) supported by teachers, schools, and textbooks as the most important reading skill
d) still being explored as a new area for teaching reading

5. If the writer examined a children's reading text that read: "Run, Jim, run. Run to Tim. Tim and Jim run to Tom", we could predict that he would_____.
- a) disapprove quite strongly
 - b) approve enthusiastically
 - c) have no real opinions one way or the other
 - d) want teachers and parents to read the text aloud to children

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RUMOUR

A rumour is a widespread report that is unproved in fact. It often serves to provoke, or to increase, antisocial collective behaviour. Rumour must be distinguished from lack of communication, for the rapid spread of rumour may very well be due to effective communication. The term rumour refers not to a method of its communication, but to its content. Under crowd conditions, it becomes difficult to check the source and accuracy of the information one receives, and thus to evaluate it, and so rumours are acted on as if they were true information. Rumour often arises because of a lack of information. People want to know what is happening, and so the rumour fills that need. Rumour may also be created as a rationalisation of or justification for emotional excesses and collective behaviour.

Mark the bası cholco.

1. The meaning of rumour lies in_____.

 - a) lack of communication
 - b) effective communication
 - c) its content
 - d) social behaviour

2. The spread of a rumour can be prevented by_____.

 - a) finding justifications for emotional excesses
 - b) controlling collective behaviour
 - c) acting on it as true information
 - d) checking its source and accuracy.

HOTEL WORK

Within a few days of starting work, I had grasped the main principles on which the hotel was run. The thing that would astonish anyone coming for the first time into the service quarters of a hotel would be the fearful noise and disorder during the rush hours. It is something so different from the steady work in a shop or a factory that it looks at first sight like mere mad management. But it is really quite unavoidable and part of the whole. Hotel work is not particularly hard, but by its nature it comes in rushes and cannot be economised. You cannot, for instance, grill a steak two hours before it is wanted; you have to wait till the last moment, by which time a mass of other work has accumulated, and then do it all together in frantic haste. The result is that at meal-times everyone is doing two men's work, which is impossible without noise and quarrelling. Indeed, the quarrels are a necessary part of the process, for the pace would never be kept up if everyone did not accuse everyone else of idling. It was for this reason that during the rush hours the whole staff raged and cursed like demons. A girl in the bakery, aged sixteen, used swear words that would have defeated a taxi driver. But we were not losing our heads and wasting time; we were just stimulating one another for the effort of packing four hours' work into two hours.

What keeps a hotel going is the fact that the employees take a genuine pride in their work, beastly and silly though it is.

Mark the best choice.

1. The service quarters of a hotel differs from a shop or factory in _____.
 - a) its disorderly orderliness
 - b) its orderliness
 - c) its bad management
 - d) its peaceful atmosphere
2. The personnel in the service quarters of a hotel often quarrel _____.
 - a) because they are really angry with each other
 - b) for some workers are really lazy
 - c) as a result of wrong orders given by their superiors
 - d) in order to keep the work tempo fast
3. The author _____ hotel work.
 - a) hates
 - b) is an outsider to
 - c) shows considerable sympathy towards
 - d) thinks it is extremely difficult to do

CAN WAR BE ABOLISHED?

By Bertrand Russell.

Is it possible to persuade mankind to live without war? War is an ancient institution which has existed for at least six thousand years. It has always been cruel and usually foolish, but in the past the human race managed to live with it. Modern ingenuity has changed this. Either Man will abolish war, or war will abolish Man. For the present, it is nuclear weapons which may, before long, offer an even greater threat. If we succeed in abolishing nuclear weapons, our work will not be done. It will never be done until we have succeeded in abolishing war. To do this, we need to persuade mankind to look upon international questions in a new way, not as contests of force, in which the victory goes to the side which is most skillful in massacre, but by arbitration in accordance with agreed principles of law. It is not easy to change age-old mental habits, but this is what must be attempted.

There are those who say that the adoption of this or that ideology would prevent war. I believe this to be a profound error. All ideologies are based upon dogmatic assertions which are, at best, doubtful, and at worst, totally false. Their adherents believe in them so fanatically that they are willing to go to war in support of them.

The movement of world opinion during the past two years has been very largely such as we can welcome. It has become a commonplace that nuclear war must be avoided. Of course, very difficult problems remain in the international sphere, but the spirit in which they are being approached is a better one than it was some years ago. It has begun to be thought, even by the powerful men who decide whether we shall live or die, that negotiations should reach agreements even if both sides do not find these agreements wholly satisfactory. It has begun to be understood that the important conflict nowadays is not between East and West, but between Man and the H-bomb.

Mark the best choice.

1. This passage implies that war is now _____.
 - a) more cruel than in the past
 - b) as cruel as in the past
 - c) less cruel than in the past
 - d) not cruel at all

CHERNOBYL

One of the most disturbing predictions following the near meltdown of the Chernobyl nuclear power plant on April 26, 1986, was that cancer cases would eventually begin to rise in areas where fallout from the accident landed. What no one suspected was that it would happen so soon, or that many of the first victims would be children. Two reports in *Nature*, one by the World Health Organisation and one by health officials in Belarus, the ex-Soviet Republic immediately downwind from Chernobyl, indicate that childhood thyroid cancer has jumped from an average of four cases a year to about 50. In the Gomel region, hit first by the radiation, the thyroid cancer rate is now about 80 times the world average. "The only reasonable explanation," write the Belarus officials, "is that it is a direct consequence of the accident at Chernobyl."

In retrospect, the phenomenon makes sense: the thyroid gland tends to concentrate iodine ingested by the body, and radioactive iodine was released in bulk during the accident. Moreover, radiation is known to cause thyroid cancer, and children are especially susceptible. But previous studies of nuclear accidents in Britain and the U.S. and studies of nuclear-weapons testing in Japan and the South Pacific failed to prove a conclusive fallout-cancer correlation. The probable difference this time: the radiation was more highly concentrated and hit a heavily populated area.

Mark the best choice.

1. Which of the following statements is true?

- a) In Belarus, childhood thyroid cancer cases increased ten times after the Chernobyl accident.
- b) In Gomel, the thyroid cancer rate now is 80 times higher than it used to be.
- c) It was known that the first cancer cases would appear in about six years.
- d) Nobody could predict that the first cancer cases would be children.

2. Which of the following statements is **not** true?

- a) The radioactive fallout from Chernobyl contained iodine.
- b) Previous nuclear studies by the British and the Americans proved that nuclear fallout caused cancer.
- c) Thyroid glands are responsible for absorbing the iodine in the body.
- d) The present high rate of cancer is due to the highly crowded areas being exposed to intense radiation.

THE NINETEENTH CENTURY IN PERSPECTIVE

The nineteenth century brought about the greatest expansion of wealth the world had ever known. Its sources lay in the industrialisation of Europe and the techniques for assuring the continuance of this growth were by no means exhausted or compromised in 1900. There had not only been a vast and accelerating flow of commodities available only in (relatively) tiny quantities a century before, but whole new ranges of goods had come into existence. Oil and electricity had joined coal, wood, wind and water as sources of energy. A chemical industry existed which could not have been envisaged in 1800. Growing power and wealth had been used to tap seemingly inexhaustible natural resources, both agricultural and mineral. Railways, electric trams, steamships, motor cars and bicycles gave millions of men a new control over their environment; they accelerated travel from place to place and eased transport for the first time since animals had been harnessed to cans thousands of years before. In terms of consumption, or of the services to which they had access, or in the enjoyment of better health, even the mass of the population in developed countries were much better off in 1900 than their predecessors a hundred years before.

In spite of this cheerful picture, doubts could break in. Even if what might happen in the future were ignored, contemplation of the cost of the new wealth and doubts about the social justice of its distribution were troubling. Most people were still terribly poor, whether or not they lived in rich countries, where the illogicality of this was particularly more striking than in earlier times. Another change in the way men thought about their condition arose over their power to get a livelihood at all. It was not new that men should be without work. What was new was that situations could suddenly arise in which the operation of blind forces of boom and slump produced millions of men without work concentrated in great towns. This was 'unemployment', the new phenomenon for which a new word had been needed. Nor were the cities themselves yet rid of all the evils which had so struck the first observers of industrial society. By 1900 the majority of western Europeans were town-dwellers and they lived in more than 140 cities of over 100,000 inhabitants in 1914. In some of them, millions of people were living in cramped, badly-maintained housing, under-provided with schools and fresh air, let alone amusement other than that of the street, and this often in sight of the wealth their society helped to produce. 'Slums' was another word invented by the nineteenth century.

CHILD-RAISING

Marianne Hardwick was timid and unadventurous, her vitality consumed by physical activity and longing, her intelligence by indecisiveness, but this had less to do with the innate characteristics of the weaker sex (as her father, Creighton Montgomery, called it) than
 5 with the enfeebling circumstances of her upbringing. Creighton Montgomery had enough money to mould his daughters according to his misconceptions: girls were not meant to fend for themselves, so he protected them from life. This meant that Marianne Montgomery grew up without making any vital choices for herself. Prevented from
 10 acquiring the habits of freedom and strength of character which grow from decision-making, very rich girls whose parents protect them in such a crippling fashion are the last representatives of Victorian womanhood. Though they may have the boldest manners and most up-to-date ideas, they share their great-grandmothers' humble
 15 dependence.

Most parents these days have to rely on their force of personality and whatever love and respect they can inspire to exert any influence over their children at all, but there is still an awful lot of parental authority that big money can buy. Multi-millionaires have more of
 20 everything than ordinary mortals, including more parent power, and their sons and daughters have about as much opportunity to develop according to their own inclinations as they would have had in the age of absolute monarchy.

The great divide between the generations (so much taken for
 25 granted that no one remarks on it any longer) is the plight of the lower and middle classes, whose children begin to drift away as soon as they are old enough to go to school. The parents cannot control the school, and have even less say as to what company and ideas the child will be exposed to; nor can they isolate him from the public mood, the spirit
 30 of the age. It is an often-heard complaint of the middle-class mother, for instance, that she must let her children watch television for hours on end every day if she is to steal any time for herself. The rich have no such problems; they can keep their offspring busy from morning to night without being near them for a minute more than they choose to
 35 be, and can exercise almost total control over their environment. As for schooling, they can hand-pick tutors with sound views to come to the children, who may never leave the grounds their parents own, in town, in the country, by the sea, unless for an exceptionally secure boarding school or a well-chaperoned trip abroad. It would have been

40 easier for little Marianne Montgomery to go to Cairo than to the nearest newsstand.

Mark the best choice.

1. Line 36, 'sound views' refers to ideas which are _____.
a) universally acceptable c) healthy
b) favoured by the parents d) loud
2. Marianne was _____.
a) unmarried b) physically active c) decisive d) unprotected
3. Creighton Montgomery _____.
a) was able to make the right judgments for Marianne's life
b) had great admiration for the opposite sex
c) lived very close to his daughter all her life
d) controlled Marianne's life by means of his money
4. Most women who lived in Queen Victoria's time _____.
a) had strong will-power c) were dependent on the men in their lives
b) were very shy among people d) had up-to-date ideas
5. The children of lower and middle class parents _____.
a) have strictly controlled education
b) are isolated from the spirit of the age
c) become independent at an early age
d) have little to say about the company and ideas they are exposed to
6. Which of the following statements is true?
a) Money is as important a factor as love and respect in all children's accepting parental authority.
b) Multi-millionaires are unfortunate people because their children don't respect them.
c) Rich fathers resemble absolute monarchs.
d) The generation gap is greater between rich parents and their children.
7. Which of the following statements best sums up the main idea of the passage?
a) Creighton Montgomery was especially devoted to his daughter.
b) The rich can control their children's lives without being near them.
c) Marianne Montgomery-Hardwick lived a very protected life.
d) Very rich girls are usually Victorian and old-fashioned.

HEROES

Heroes are not new. Every age produces its quota of individuals who distinguish themselves from other members of their community by some superior achievement. Their praise serves as an inspiration for others to follow their example. The image of the hero is that of an individual who embodies a virtue to the highest degree. That virtue may be courage, wisdom, or faith, but it is always a personal attribute that is made evident by the hero's achievements. The hero does not strive for recognition. The motivation for his actions cannot be egotistical or he would not be a true hero.

Mark the best choice.

1. The most important aspect of the definition of a hero is _____.
 - a) achievement
 - b) wisdom
 - c) recognition
 - d) egotism
2. A hero must create a desire in others to _____.
 - a) ignore his virtues
 - b) think he is a new kind of man
 - c) follow his example
 - d) recognise him regardless of anything he does

THE OCEAN vs. THE BODY

The ocean cannot be dissociated from any of our problems. Though not always given proper credit, it is nonetheless a vital factor in the 'production' of climate, storms, agriculture, health, war and peace, trade, leisure, and creative art. It is not merely a weather-regulating system and a source of food, cattle feed, fuel, and minerals. More generally, it absorbs vast quantities of the carbon dioxide generated by the combustion of fossil fuels, it releases a major part of the oxygen we breathe, and it acts as a powerful buffer to slow down or to prevent such calamities as quick variations in the sea level. The human body is made up of much more water than all its components combined. A dehydrated human being would weigh little more than 30 pounds. Our flesh is composed of a variety of cells, each one of which contains a miniature ocean, less salty than today's ocean but comprising all the salts of the sea, probably the built-in heritage of our distant ancestry, when some mutating fish turned into reptiles and invaded the newly-formed land.

Mark the best choice.

1. We may infer that the author believes that _____.
 - a) the ocean does not always get the attention it should as human beings try to solve their problems
 - b) the ocean is polluted
 - c) the ocean is not a weather-regulating system
 - d) oceans cause a number of problems for humanity
2. The writer believes that _____ between the physical makeup of the ocean and the human body.
 - a) there is not much of a relationship
 - b) there is no evidence to suggest a relationship
 - c) we must study the possible relationship
 - d) there is much confusion
3. According to the author, which of the following is not affected by the ocean?
 - a) paintings
 - b) tourism
 - c) hurricanes
 - d) the Sun

BRAINS

It is interesting to compare the brain of a very large dinosaur with the brain of an equally large modern mammal like the whale. The largest dinosaurs weighed as much as 100 tons. Whales also weigh as much as 100 tons and are, as the dinosaurs were in their time, the largest animals alive today. The brain of a large whale is a huge mass of gray matter, nearly a foot and a half across, that weighs about 20 pounds. The possessor of this mammoth brain is an intelligent animal. Some whales have a remarkable memory' capacity; they can memorize a complex whale song that goes on for hours, and repeat it note for note a year later. The brains of the largest dinosaurs, on the other hand, such as Supersaurus, were only the size of an orange, and weighed about half a pound. Yet, that small amount of gray matter had to exercise control over the same 100-ton bulk that is commanded by the 20-pound brain of the largest whales.

Scientists who specialize in the study of brains and intelligence have plotted charts of brain weight against body weight for many kinds of animals. They find that when the ratio of brain weight to body weight is as small as it was in the Supersaurus, the behavior of the animal is stereotyped, automatic, and unintelligent. The reason is clear: a large body has many large muscles and needs many nerve fibers for its coordination. When that large body is controlled by a small brain, every neuron in this brain must be used to move the body through its basic survival routines: find food! flee from the predator! and so on.

The Supersaurus was not an unusually stupid dinosaur, and dinosaurs were not unusually stupid reptiles. In fact, dinosaurs had normal intelligence for reptiles. Of course, there was a spread in braininess among the dinosaurs. But the same is true among modern mammals; plant-eaters like the cow are among the least intelligent mammals, while alert carnivores like the wolf are among the most intelligent. However, the dinosaurs as a group were generally less intelligent than the early mammals as a group. This held then, and still holds today, all the way up and down the scale of sizes. A little lizard, for example, has a considerably smaller brain than a chipmunk of the same size and displays a far less flexible repertoire.

Mark the best choice.

1. A Supersaurus and a modern whale _____.
 - a) have about the same live weight
 - b) have about equal intelligence
 - c) have brains the size of oranges
 - d) live underwater

HOW TO LIVE TO BE A HUNDRED

For adults who remain physically childlike in old age, there has to be a sustained enthusiasm for some aspect of life. People who want a long life with an alert old age should never retire. If they are forcibly retired, they should immerse themselves in some new, absorbing activity.

Some people are naturally more physically active than others, and are at a considerable advantage, providing their activities are not the result of stress. Such activities as walking and gardening prolong life spectacularly because they are 'non-intensive' forms of all-over bodily movement. The more earnest ageing exercisers display a conscious or unconscious anxiety about their health. If they take exercise too seriously, it will work against them. Older individuals who take up intensive athletic activity are usually people who fear declining health. Yet, it is crucial that physical exercise - as we grow past the young spoilsman stage - should be extensive rather than intensive and, above all, fun.

A calm temperament favours longevity. Those who are sharply aggressive, emotionally explosive or naggingly anxious are at a grave disadvantage. But it is important to make a distinction between calmly relaxed and passively lazy. Relaxation does not contradict the idea of passionate interest. Indeed, zest for living, eagerness to pursue chosen subjects are vital in long life.

Thinking about 'the good old days', complaining about how the world is deteriorating, criticising the younger generations are sure signs of an early funeral.

Being successful is a great life-stretcher, and can even override such life-shorteners as obesity and fondness for drink. But, in gaining success, individuals should not overstress themselves. And success must always be measured in personal terms. A hill-shepherd may feel just as successful in his own way as a Nobel Laureate.

Long-lived individuals seem to be more concerned with what they do than who they are. They live outside themselves rather than dwelling on their own personalities.

In personal habits, the long-lived are generally moderate. Extremes of diet are not common. A mixed diet seems to favour longevity. Puritanical arguments about smoking and drinking have little to support them. Many long-lived individuals enjoy nicotine and alcohol - in moderation.

Most long-lived people have a sense of self-discipline. That does not imply a harsh military-style masochism, but the ordering of life and the imposition of a pattern on the events of the day. The man who lives long because he walks a mile a day does so because he does it every day, as part

of an organised existence.

Over and over, during my researches, it emerged that long life goes with a 'twinkle in the eye'. A sense of humour, impishness, a feeling that life is fun, are strong weapons against ageing. The sour-faced puritan and the solemn bore soon begin to lose ground, leaving their more amused contemporaries to enjoy the last laugh.

Most important of all, we should always keep in mind that nothing is to be gained by a head-in-the-sand avoidance of the facts of life and death. The healthiest solution is to accept that one's span on Earth is limited and then to live every day, in the present, and to the full.

Mark the best choice.

1. Retirement is not recommended because_____.

- a) it keeps you alert in old age
- b) it may take away the enthusiasm of life
- c) other activities can never replace a real job
- d) people who retire become physically active

2. Non-intensive forms of physical activity_____.

- a) display an unconscious anxiety about one's health
- b) become less popular as people get older
- c) contribute to longevity to a great extent
- d) work against the people who do them

3. People with a calm temperament_____.

- a) are usually aggressive and emotionally explosive
- b) are usually lazy and don't have many interests
- c) may live longer than anxious ones
- d) have a stronger zest for living

4. _____ may cause an early death.

- a) Being happy with one's present status
- b) Lack of interest in world affairs
- c) Getting on with young people
- d) Thinking too much about the past

5. A life-stretcher is_____.

- a) anything that allows you to live longer
- b) a kind of activity that you are fond of
- c) something that can never be measured
- d) something that causes too much stress

IMPORTANCE OF EARLY EXPERIENCES

We are becoming increasingly self-conscious about the importance of harmonious parent-child relationships as more and more evidence is collected about the ill-effects of family disruptions on the emotional development of the young child. Prof. Clarke, however, believes that the emphasis in studies of the long-term effects of early experience is misplaced. In his Maudsley lecture, last 'week, to the Royal Medico-Psychological Association, he suggested that experiences in the first few months of life (generally believed to be the critical period for emotional development) will have no long-term effect unless they are continually reinforced, and this hypothesis, he said, is supported by much published work that at first sight seems to contradict it.

One of the most famous studies on maternal deprivation is the Harlows' work on motherless monkeys. Infant rhesus monkeys reared in isolation were unable to make normal social contacts in adult life, and few succeeded in reproducing. The females which did produce offspring were either indifferent or hostile towards their young. Deprivation of maternal care certainly had a deleterious effect on the development of the monkeys' behaviour, but an important point that has been overlooked, said Professor Clarke, was that the females became better mothers in successive pregnancies: their behaviour could still be modified by experiences in adult life.

In human beings, too, the formative years probably last much longer than was previously supposed. Studies of the association between the death of a close relative and subsequent depressive illness in children, for example, showed that those aged 10-14 years were the most vulnerable. Some years ago, two distressing cases in the USA gave psychologists an opportunity to study the effects of isolation in children. Two young children, in different parts of the country, were discovered to have been kept locked up for several years, almost since birth. Deprived of human contacts, neither had learned to speak, but within a few years of their release, one of these children, who had been given more encouragement and expert teaching than the other, had learned to speak and read, her I.Q. was normal, and she seemed to be emotionally stable. Severe sensory deprivation in early life had not so far seriously affected her later development. In America, Burt carried out a simple experiment to test the extinction of memory and the significance of reinforcement in learning. When his son was 15 months old, he began to read to him a short passage in Greek and he repeated the passage at frequent and regular intervals until he was 3 years old. This material was reinforced at the age of 5, 8, and 14 years, at which time the

boy's powers of recall were compared to newly learned material. At 5 years, he relearned the prelearned passage considerably faster than the new material, but by the age of 14 the effect of prelearning was extinguished.

Our views on the importance of early experiences have been influenced to some extent by animal studies. Some birds, for example, become attached to the mother at a very early age; if the mother is not there, the young may become attached to a human being, a bird of a different species, or an inanimate object. It is commonly believed, Professor Clarke added, that human babies show a similar sensitive period of fairly short duration but ending less abruptly than in geese or ducks. But when we come to think of it, it seems much more likely that behaviour in a slowly maturing species such as ours should remain plastic for a long time.

Mark the best choice.

1. It is evident that _____.
 - a) parent-child relationships are harmonious
 - b) disturbance in the family affects children negatively
 - c) people are getting more self-conscious
 - d) emotional development of children is determined* by parents
2. According to Professor Clarke, experiences in the first few months of life
 - a) have no long-term effect on emotional development
 - b) should be continually reinforced
 - c) may affect emotional development
 - d) Both (b) and (c).
3. There is a lot of published work which _____ Prof. Clarke's hypothesis.
 - a) contradicts
 - b) seems to support
 - c) is based on
 - d) supports
4. People had not noticed before that the Harlows' work proved _____.
 - a) the monkeys got worse and more hostile as they got older
 - b) the behaviour of female monkeys could be changed for the better
 - c) being reared in isolation led to inability to make normal social contacts
 - d) females reared in isolation were not loving towards their young

EMOTIONAL INTELLIGENCE

The phrase emotional intelligence was coined by Yale psychologist Peter Salovey and the University of New Hampshire's John Mayer five years ago to describe qualities such as understanding one's own feelings, empathy for the feelings of others and 'the regulation of emotion in a way that enhances living'. Their notion is about to bound into American conversation, handily shortened to EQ, thanks to a new book, *Emotional Intelligence* (Bantam) by Daniel Goleman. This *New York Times* science writer, who has a PhD in psychology from Harvard and a gift for making even the chewiest scientific theories digestible to lay readers, has brought together a decade's worth of behavioral research into how the mind processes feelings. His goal, he announces on the cover, is to redefine what it means to be smart. His thesis: when it comes to predicting a person's success, brain power as measured by IQ and standardized achievement tests may actually matter less than the qualities of mind once thought of as 'character', before the word began to sound quaint in the US.

Goleman is looking for antidotes to restore 'civility to our streets and caring to our communal life'. He sees practical applications everywhere in America for how companies should decide whom to hire, how couples can increase the odds that their marriage will last, how parents should raise their children and how schools should teach them. When street gangs become substitutes for families, when school-yard insults end in stabbings, when more than half of marriages end in divorce, when the majority of the children murdered in the U.S. are killed by parents and step-parents - many of whom say they were trying to discipline the child for behaviour such as blocking the TV or crying too much - it suggests a need for remedial emotional education. While children are still young, Goleman argues, there is a 'neurological window of opportunity' since the brain's prefrontal circuitry, which regulates how we act on what we feel, probably does not mature until mid-adolescence.

EQ is not the opposite of IQ. Some people are blessed with a lot of both, some with little of either. What researchers have been trying to understand is how they complement each other; how one's ability to handle stress, for instance affects the ability to concentrate and put intelligence to use. Among the ingredients for success, researchers now generally agree that IQ counts for only 20%; the rest depends on everything from social class to luck to the neural pathways that have developed in the brain over millions of years of human evolution.

Emotional life grows out of an area of the brain called the limbic system, specifically the amygdala, where primitive emotions such as fear, anger,

disgust and delight originate. Millions of years ago, the neocortex was added, enabling humans to plan, learn and remember. Lust grows from the limbic system; love, from the neocortex. Animals such as reptiles, which have no neocortex, cannot experience anything like maternal love. This is why baby snakes have to hide to avoid being eaten by their parents. Humans, with their capacity for love, will protect their offspring, allowing the brains of the young time to develop. The more connections there are between the limbic system and the neocortex, the more emotional responses are possible.

If emotional intelligence has a cornerstone on which most other emotional skills depend, it is a sense of self-awareness, of being smart about what we feel. A person whose day starts badly at home may be grouchy all day at work without quite knowing why. Once an emotional response comes into awareness - or, physiologically, is processed through the neocortex - the chances of handling it appropriately improve. Scientists refer to 'metamood', the ability to pull back and recognize that what I'm feeling is anger - or sorrow, or shame.

Mark the best choice.

1. It can be inferred from the text that _____.
 - a) the term 'emotional intelligence' was first used by Daniel Goleman
 - b) EQ is the understanding of one's own and others' feelings and the ordering of one's own emotions in order to lead a better life
 - c) Goleman's book examines the behavioral research of the last couple of years on how the mind processes feelings
 - d) Goleman's book is written in a highly complex language
2. According to Goleman, a person's success can be predicted best by giving the priority to _____.
 - a) character
 - b) I.Q.
 - c) achievement tests
 - d) brain power
3. In his examples of practical applications, Goleman does not mention
 - a) marriages
 - b) street gangs
 - c) universities
 - d) companies
4. Goleman thinks that the brain's prefrontal circuitry _____.
 - a) is responsible for co-ordinating acting and feeling
 - b) becomes mature before the age of ten
 - c) functions better in parents than in step-parents
 - d) is better developed in married people
5. A person's success depends least on his _____.
 - a) I.Q.
 - b) social class
 - c) luck
 - d) neural pathways

6. The neocortex_____.
- a) serves as an area of primitive emotions
 - b) had developed in the brain before the limbic system
 - c) enables the humans to regulate their primitive emotions
 - d) doesn't have as important a function as the amygdala has
7. When a person is in a 'metamood', he_____.
- a) is angry
 - b) analyzes himself
 - c) acts in a shameful way
 - d) is unaware of himself

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ESCAPE OF A KILLER VIRUS

Two years ago, on a remote island off the coast of South Australia, government scientists began testing a form of biological warfare. Under supposedly tight quarantine restrictions, researchers on Wardang Island introduced the calicivirus into animal test groups. Death from this particular infectious agent is swift. As the blood of the victims begins to clot, restricting the brain's oxygen supply, they become lethargic; within 30 hours they are dead from acute respiratory and heart failure.

No one paid much attention to these pestilent experiments until this year, when they suddenly got out of hand. By October researchers realized that the virus had escaped from the test sites and spread throughout the 30-sq-km island. As scientists tried in vain to contain the outbreak, their worst fears were soon realized: casualties began to appear on the mainland. But even as the death count surged into the millions and the disease reached as far as the Flinders Ranges 800 km away, Australians didn't panic. In fact, many cheered, since the victims of the plague were old enemies, the country's vexatious rabbits.

For most Australians, the benign image of the rabbit conveyed by Peter Rabbit simply doesn't apply. Ever since a landowner imported and released 12 wild rabbits in 1859, they have multiplied into a ravenous horde that nibbles away at the nation's crops and agricultural profits. Planning for systematic extermination programs began in the 1940's, when an estimated 1 billion rabbits were devouring produce, causing land erosion and destroying native habitats. Government scientists introduced myxomatosis, an anti-rabbit virus from Brazil, in 1950. Though the campaign reduced the rabbit population to 100 million within two years, the survivors later built up immunity and restocked their numbers.

In 1984, a virus that began sweeping through China's rabbit population gave Australians new hope. Harmless to humans, rabbit calicivirus disease (RCD) was introduced to Europe in the '80s, probably via smuggled rabbit products, and has helped bring rabbit populations down to tolerable levels. Impressed by the well-documented results, Australia's Commonwealth Scientific and Industrial Research Organisation imported a batch of the virus from the Czech Republic in 1991. After three years of safety tests, they set up the experimental station on Wardang Island for field trials. Tests convinced the CSIRO that the virus posed no threat to other Australian animal species or to humans, so plans had been made to release RCD at seven sites on the mainland in February 1998, following further research and a period of public debate.

Then came the outbreak. So far an estimated 5 million rabbits have died, and the epidemic continues to move north and east. Few people would miss the \$500 million in damage the rabbits cause each year, but in the aftermath of the Ebola scare in Africa, the ease with which the calicivirus eluded its human handlers has raised some troubling issues. Embarrassed CSIRO scientists believe the disease was spread by bush flies that came into contact with the infected rabbits and were then blown onto the mainland by freak winds. The government has imported 100,000 doses of Cylap vaccine to save pet and laboratory rabbits, and the CSIRO is trying to persuade the public that no damage to the environment or human health will result from the virus' premature release.

Environmentalists have also voiced concern that a sudden disappearance of rabbits could have unfortunate effects on the wildlife food chain. One possibility is that foxes and feral cats, which depend on rabbits for food, could instead turn to small native fauna, some of which are endangered species.

For the moment at least, farmers are overjoyed about the killer virus. "This is the most exciting development for the Australian environment in years," says David Lord, a fourth-generation farmer, whose 66,000-hectare spread near Broken Hill has some 750,000 unwelcome guests.

Mark the best choice.

1. The calicivirus _____.
 - a) infects the blood of human beings
 - b) was experimented with on a 30 sq. mile site
 - c) spread to the Australian mainland from Wardang Island
 - d) caused great worry among the Australians farmers
2. The Australians don't like rabbits because they _____.
 - a) eat the crops
 - b) cause financial loss
 - c) cause land erosion
 - d) All of the above.

APPENDIX A

Connectors

Mark the best choice.

1. Most people are extremely frightened of travelling by airplane; _____, they prefer to travel by another means of transport even if it takes longer.
a) provided that b) in that case c) therefore d) rather
2. He wanted to learn German so much that he went to Germany to study the language. _____, when he came back, he still couldn't communicate.
a) In contrast b) However c) On the contrary d) Although
3. The appliance department couldn't sell their products at that price. _____, they decided to make a reduction.
a) Consequently b) In addition c) Because d) Otherwise
4. That country imports more goods than it exports and there is also the problem of inflation. _____, it is going through a period of economic depression.
a) In brief b) In that case c) Since d) For example
5. _____ several solutions to the problem have been proposed, the most appropriate one hasn't been chosen yet.
a) Even if b) Even though c) Since d) In spite of

Many psychologists say that rough, aggressive sports like boxing or soccer are a way for both players and viewers to release their anger, _____ (6) _____ they help to lessen feelings of violence. In fact, many people see international games as a way to build goodwill and understanding among nations. _____ (7) _____, there are other psychologists who argue that taking part in aggressive sports does not eliminate feelings of violence; _____ (8) _____, it builds them up. They also say that violent acts that often occur on the playing field affect the fans as well. _____ (9) _____, violence in sports can cause violence in people watching those sports.

- | | | | |
|---------------------|-----------------|-----------------------|-------------------|
| 6. a) provided that | 7. a) Moreover | 8. a) on the contrary | 9. a) Whereas |
| b) and thus | b) Consequently | b) since | b) In other words |
| c) although | c) Unless | c) such as | c) In spite of |
| d) of course | d) However | d) although | d) Fortunately |

This is a report written by a hotel inspector.

REPORT ON MY VISIT TO HOTEL DU LAC

For the most part, I found things to be operating smoothly and efficiently. The staff seemed hard working and courteous. _____(10)_____, as soon as I checked in, a very polite porter was right there to take my luggage and escort me to my room. _____(11)_____, the facilities and service were very good, especially those connected with the front desk, the lobby, and the dining room.

I must report a few concerns, though. _____(12)_____, the elevator service was slow. This is not surprising when you consider that there are only two elevators serving a hotel of sixteen floors. Moreover, the air conditioning in my room was difficult to adjust to a comfortable level. _____(13)_____, I had to ask for help from one of the staff and he used tools to make the adjustment. _____(14)_____, the carpeting on the main staircase was faded and worn. For aesthetic reasons as well as for reasons of safety, it should be replaced.

_____ (15)_____, if the problems mentioned in this report are corrected, the hotel will merit an excellent quality rating, including its service, staff and facilities.

10. a) As a result
b) In short
c) For example
d) Even though

11. a) However
b) In addition
c) Because
d) In case

12. a) Furthermore
b) Therefore
c) Meanwhile
d) First

13. a) If
b) In short
c) In fact
d) Unless

14. a) Although
b) As a result
c) Finally
d) Of course

15. a) In conclusion
b) Yet
c) Accordingly
d) That is

There are many sources of danger related to the use of nuclear reactions to supply us with energy. First, the radioactive material must travel from its place of manufacture to the power station. _____(16)_____ the power stations themselves are solidly built, the containers used for the transport of the material are not. _____(17)_____, there are only two methods of transport available, namely road or rail, and both of these involve close contact with the general public. _____(18)_____ the routes are sure to pass near, or even through, heavily populated areas.

_____ (19)_____, there is the problem of waste. All nuclear power stations produce wastes that in most cases will remain radioactive for thousands of years. It is impossible to make these wastes non-radioactive. _____(20)_____, they must be stored in one of the several ways that scientists have developed. _____(21)_____, they may be buried under the ground or dropped into abandoned mines, or sunk in the sea. _____(22)_____, the problem still remains as these methods do not

eliminate the danger; they only provide a temporary solution. An earthquake could easily crack the containers open.

____(23)____, there is the problem of accidental exposure due to a leak or an explosion at the power station. As with the other two possible dangers, this is not very likely, so it does not provide a serious objection to the nuclear program.____(24)____, it can happen.

.(25). separately, these three types of risks are not a great cause for concern. Taken together, however, the probability of disaster is extremely high.

- | | | | |
|---|---|--|--|
| 16. a) Although
b) That is
c) In contrast
d) Because | 17. a) Consequently
b) Unfortunately
c) Despite this
d) Unless | 18. a) if
b) since
c) but
d) meanwhile | 19. a) As a result
b) For instance
c) On the contrary
d) Secondly |
| 20. a) Therefore
b) In other words
c) Since
d) In case | 21. a) Unlike
b) On the other hand
c) For instance
d) Besides | 22. a) Moreover
b) That is
c) However
d) On the contrary | |
| 23. a) Because
b) Finally
c) Even though
d) In fact | 24. a) Nevertheless
b) Therefore
c) In conclusion
d) Moreover | 25. a) Provided that
b) Afterwards
c) Although
d) To sum up | |

Heart disease, that is the decrease or disorder of cardiac output, is the leading cause of death in the world today ____ (26) ____ it has wide-reaching effects on the body. ____ (27) ____, when the amount of blood pumped by the heart decreases, the transport of oxygen and nutrients to the body tissues decreases. ____ (28) ____, the transport of carbon dioxide and other products of metabolism to the lungs and kidneys becomes less efficient and so less effective in eliminating toxic elements from the body. ____ (29) ____, the body is slowly poisoned by its own toxic wastes. Finally, the distribution of hormones and other substances that regulate cell function decreases as the blood from the heart decreases. ____ (30) ____, heart disease cannot be considered as a simple destruction of one part of the body.

- | | | |
|---|---|---|
| 26. a) because
b) or
c) so
d) although | 27. a) Therefore
b) Thus
c) For example
d) That is | 28. a) In contrast
b) Furthermore
c) Hence
d) Despite this |
|---|---|---|

29. a) On the contrary
b) In addition
c) Consequently
d) Besides
30. a) In other words
b) However
c) Meanwhile
d) Afterwards

Fill in each blank with a suitable connector from the list. There are more connectors than you need. There may be more than one answer to certain blanks.

as	nevertheless	in addition	on the other hand
furthermore	such as	therefore	since
however	so	although	and
because	yet	thus	nonetheless

I.
Feudalism was dying in the fifteenth and sixteenth centuries, and the strong nation-state was taking the place of this old system of small, private states. These modern nation-states were well organised and could wage wars using many more soldiers than before. (31) _____ more soldiers were involved in the fighting, wars became bloodier and large armies were very common. Guns began to be used instead of other weapons, (32) _____ swords and spears. Before this, soldiers had worn suits made of metal, which protected them against spears and swords. These suits of armour were expensive, (33) _____ only rich people could fight wars. (34) _____, armour could not protect the soldier against fire-arms. Gunpowder, a substance used in all guns or firearms, therefore, became an important part of war. Wars were no longer fought by rich people with suits of armour. The common person, using firearms and gunpowder, became more important as a soldier. (35) _____, gunpowder helped to facilitate the transition from feudalism to the nation-state.

II.
There is much discussion today about whether economic growth is desirable. At an earlier period, our desire for material wealth may have been justified. Now, (36) _____, this desire for more than we need is causing serious problems. (37) _____ we have good intentions, we may be producing too much, too fast.

Those who criticise economic growth argue that we must slow down (38) _____ they believe that society is approaching certain limits on growth. These include the fixed supply of natural resources and the continuing increase in the world's population. (39) _____, there are the possible

negative effects of industry on the natural environment. As society reaches these limits, economic growth can no longer continue, and the quality of life will decrease.

People who want more economic growth, (40) _____, argue that even at the present growth rate there are still many poor people in the world. These proponents of economic growth believe that only more growth can create the capital needed to improve the quality of life in the world. (41) _____, they argue that only continued growth can provide the financial resources required to protect our natural surroundings from industrialisation.

Fill in each blank with a connector from the list. Use each only once.

however although in spite of nevertheless

(42) _____ its difficulties, life in the university can be considered the best years of one's life. (43) _____, it is not appreciated by most students. As soon as a student enters the campus, he finds liberty, adult friendships, team work and all sorts of recreation he has missed all his life. (44) _____, he can hardly find time to benefit from all these opportunities because of the density of his academic calendar. To my way of thinking, (45) _____ a university student's life may be loaded with different courses and academic studies, he can still find time to enjoy the social activities on the campus.