V. SENTENCE COMPLETION

EXERCISE 1:

Cork

Recent years have seen the end of the virtual monopoly of cork as the material for bottle stoppers, due to concerns about the effect it may have on the contents of the bottle. This is caused by a chemical compound called 2,4,6-trichloroanisole (TCA), which forms through the interaction of plant phenols, chlorine and mould. The tiniest concentrations - as little as three or four parts to a trillion - can spoil the taste of the product contained in the bottle. The result has been a gradual yet steady move first towards plastic stoppers and, more recently, to aluminium screw caps. These substitutes are cheaper to manufacture and, in the case of screw caps, more convenient for the user.

The classic cork stopper does have several advantages, however. Firstly, its traditional image is more in keeping with that of the type of high quality goods with which it has long been associated. Secondly - and very importantly - cork is a sustainable product that can be recycled without difficulty. Moreover, cork forests are a resource which supports local biodiversity, and prevents desertification in the regions where they are planted. So, given the current concerns about environmental issues, the future of this ancient material once again looks promising.

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

Comparison of aluminium screw caps and cork bottle stoppers

Advantages of aluminium screw caps

- do not affect the 6..... of the bottle contents
- are 7..... to produce
- are 8..... to use

Advantages of cork bottle stoppers

- suit the 9..... of quality products
- made from a 10..... material
- easily 11.....
- cork forests aid 12.....
- cork forests stop 13..... happening

EXERCISE 2:

ONE WORD	**1.** In one well-known test, women and men were able to distinguish by smell alone clothing worn by their marriage partners from similar clothing worn by other people.	Tests have shown that odours can help people recognise the..... belonging to their husbands and wives.
	2. Odours, unlike colours, for instance, cannot be named in many languages because the specific vocabulary simply doesn't exist . 'It smells like . . . ,' we have to say when describing an odour, struggling to express our olfactory experience	Certain linguistic groups may have difficulty describing smell because they lack the appropriate.....
	3. Researchers have still to decide whether smell is one sense or two - one responding to odours proper and the other registering odourless chemicals in the air .	The sense of smell may involve response to ..... which do not smell, in addition to obvious odours.
	4. Odours are invested with cultural values: smells that are considered to be offensive in some cultures may be perfectly acceptable in others.	Odours regarded as unpleasant in certain..... are not regarded as unpleasant in others.
	5. The technique survives to this day at a test site in Florida run by the University of Florida, with support from the Electrical Power Research Institute (EPRI) , based in California. EPRI, which is funded by power companies , is looking at ways to protect the United States' power grid from lightning strikes.	EPRI receives financial support from.....
TWO WORDS	**6.** However, there is still a big stumbling block. The laser is no nifty portable: it's a monster that takes up a whole room. Diels is trying to cut down the size and says that a laser around the size of a small table is in the offing.	The main difficulty associated with using the laser equipment is related to its.....
	7. The Sonar and Radar pioneers didn't know it then, but all the world now knows that bats, or rather natural selection working on bats, had perfected the system tens of millions of years earlier; and their radar' achieves feats of detection and navigation that would strike an engineer dumb with admiration.	Long before the invention of radar, ... had resulted in a sophisticated radar-like system in bats.
	8. It is technically incorrect to talk about bat 'radar', since they do not use radio waves. It is sonar.	Radar is an inaccurate term when referring to bats because ..... are not used in

		their navigation system.
	9. The underlying mathematical theories of radar and sonar are very similar; and much of our scientific understanding of the details of what bats are doing has come from applying radar theory to them.	Radar and sonar are based on similar……
	10. The American zoologist Donald Griffin, who was largely responsible for the discovery of sonar in bats, coined the term 'écholocation' to cover both sonar and radar, whether used by animals or by human instruments.	The word 'echolocation' was first used by someone working as a ……

EXERCISE 3:

THE CONTEXT, MEANING AND SCOPE OF TOURISM

Once the exclusive province of the wealthy, travel and tourism have become an institutionalised way of life for most of the population. In fact, McIntosh and Goeldner (1990) suggest that tourism has become the largest commodity in international trade for many nations and, for a significant number of other countries, it ranks second or third . For example, tourism is the major source of income in Bermuda, Greece, Italy, Spain, Switzerland and most Caribbean countries. In addition, Hawkins and Ritchie, quoting from data published by the American Express Company, suggest that the travel and tourism industry is the number one ranked employer in the Bahamas, Brazil, Canada, France, (the former) West Germany, Hong Kong, Italy, Jamaica, Japan, Singapore, the United Kingdom and the United States. However, because of problems of definition, which directly affect statistical measurement, it is not possible with any degree of certainty to provide precise, valid or reliable data about the extent of world-wide tourism participation or its economic impact . In many cases, similar difficulties arise when attempts are made to measure domestic tourism.

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

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

11. In Greece, tourism is the most important ……..

12. The travel and tourism industry in Jamaica is the major ……..

13. The problems associated with measuring international tourism are often reflected in the measurement of ……..

EXERCISE 4:

AUTUMN LEAVES

Canadian writer Jay Ingram investigates the mystery of why leaves turn red in the fall

A. Chlorophyll, although exquisitely evolved to capture the energy of sunlight, can sometimes be overwhelmed by it, especially in situations of drought, low temperatures, or nutrient deficiency. Moreover, the problem of oversensitivity to light is even more acute in the fall, when the leaf is busy preparing for winter by dismantling its internal machinery. The energy absorbed by the chlorophyll molecules of the unstable autumn leaf is not immediately channelled into useful products and processes, as it would be in an intact summer leaf. The weakened fall leaf then becomes vulnerable to the highly destructive effects of the oxygen created by the excited chlorophyll molecules.

B. Even if you had never suspected that this is what was going on when leaves turn red, there are clues out there . One is straightforward: on many trees, the leaves that are the reddest are those on the side of the tree which gets most sun . Not only that, but the red is brighter on the upper side of the leaf. It has also been recognised for decades that the best conditions for intense red colours are dry , sunny days and coo nights, conditions that nicely match those that make leaves susceptible to excess light. And finally, trees such as maples usually get much redder the more north you travel in the northern hemisphere. It's colder there, they're more stressed, their chlorophyll is more sensitive and it needs more sunblock.

C. What is still not fully understood, however, is why some trees resort to producing red pigments while others don't bother, and simply reveal their orange or yellow hues. Do these trees have other means at their disposal to prevent overexposure to light in autumn? Their story, though not as spectacular to the eye, will surely turn out to be as subtle and as complex.

QUESTIONS: Write down **ONE WORD** only

Why believe the 'light screen' hypothesis?

- The most vividly coloured red leaves are found on the side of the tree facing the **19**.....
- The **20**..... surfaces of leaves contain the most red pigment.
- Red leaves are most abundant when daytime weather conditions are **21**..... and sunny.
- The intensity of the red colour of leaves increases as you go further **22**.....

EXERCISE 5:

The Burden of Thirst

If the millions of women who haul water long distances had a faucet by their door, whole societies could be transformed.

A. Binayo dropped out of school when she was eight years old, in part because she had to help her mother fetch water from the Toiro River. The water is dirty and unsafe to drink; every year that the ongoing drought continues, the once mighty river grows more exhausted. But it is the only water Foro has ever had.

B. Nearly 900 million people in the world have no access to clean water. Furthermore, 2.5 billion people have no safe way to get rid of human waste. Polluted water and lack of proper hygiene cause disease and kill 3.3 million people around the world annually, most of them children.

C. Communities where clean water becomes accessible and plentiful are transformed. All the hours previously spent hauling water can be used to cultivate more crops, raise more animals or even start a business. Families spend less time sick or caring for family members who are unwell.

Complete the sentences. Write NO MORE THAN ONE WORD AND/OR A NUMBER for each answer.

1. The water levels in the Toiro River are falling because of ……..
2. Globally, the number of people who die each year as a result of using dirty water is ……..
3. When families have clean water, they can spend more time growing ……..

EXERCISE 6:

It looks harmless and vulnerable. But the honey badger is afraid of nothing... and will attack and eat almost anything

The honey badger (Melivora capensis), is an African and south-Asian mammal that has a reputation for being one of the world's most fearless animals, despite its small size. And in spite of its gentle-sounding name, it is also one of its most aggressive. Honey badgers have been known to attack lions, buffalo, and snakes three times their size. Even humans are not safe from a honey badger if it thinks the human will attack or harm it. They are also extremely tough creatures, and can recover quickly from injuries that would kill most other animals.

At first glance, honey badgers look like the common European badger. They are usually between 75cm and 1 metre long, although males are about twice the size of females. They are instantly recognisable by grey and white stripes that extend from the top of the head to the tail. Closer inspection, which is probably not a wise thing to do, reveals pointed teeth, and sharp front claws which can be four centimetres in length.

Honey badgers are meat-eating animals with an extremely varied diet. They mainly eat a range of small creatures like beetles, lizards and birds, but will also catch larger reptiles like snakes and small crocodiles. Some mammals, such as foxes, antelope and wild cats also form part of their diet.

The badgers locate their prey mainly using their excellent sense of smell, and catch most of their prey through digging. During a 24-hour period, they may dig as many as fifty holes, and travel more than 40 kilometres. They are also good climbers, and can easily climb very tall trees to steal eggs from birds' nests, or catch other tree-dwelling creatures.

As their name suggests, honey badgers have always been associated with honey, although they do not actually eat it. It is the highly nutritious bee eggs (called 'brood') that they prefer, and they will do anything to find it. They usually cause a lot of damage to the hive in the process, and for this reason, humans are one of their main predators. Bee-keepers will often set special traps for honey badgers, to protect their hives.

One of the most fascinating aspects of the honey badger is its working relationship with a bird called the greater honeyguide (Indicator indicator). This bird deliberately guides the badger to beehives, then waits while the badger breaks into the hive and extracts the brood. The two creatures, bird and mammal, then share the brood between them.

Source: Complete IELTS band 4-5

Complete labels on the diagram. NO MORE THAN ONE WORD OR A NUMBER

1. Although they are not big animals, honey badgers are fearless, ... and tough.
2. Honey badgers will attack ..... if they need to protect themselves.
3. The pattern and colours on the honey badger's back make it .....
4. The food they eat is meat based and .....
5. ..... form the biggest part of a honey badger's diet.
6. Honey badgers find the creatures they eat by their .....
7. ..... are often used to catch honey badgers which attack beehives.
8. For more particular type of food, the honey badger has a ..... with another creature.

EXERCISE 7:

GIFTED CHILDREN AND LEARNING

A. Internationally, 'giftedness' is most frequently determined by a score on a general intelligence test, known as an IQ test, which is above a chosen cutoff point, usually at around the top 2-5%. Children's educational environment contributes to the IQ score and the way intelligence is used. For example, a very close positive relationship was found when children's IQ scores were compared with their home educational provision (**Freeman** , 2010). The higher the children's IQ scores, especially over IQ 130, the better the quality of their educational backup, measured in terms of reported verbal interactions with parents, number of books and activities in their home etc. Because IQ tests are decidedly influenced by what the child has learned, they are to some extent measures of current achievement based on age-norms; that is, how well the children have learned to manipulate their knowledge and know-how within the terms of the test. The vocabulary aspect, for example, is dependent on having heard those words. But IQ tests can neither identify the processes of learning and thinking nor predict creativity.

B. Excellence does not emerge without appropriate help. To reach an exceptionally high standard in any area very able children need the means to learn, which includes material to work with and focused challenging tuition -and the encouragement to follow their dream. There appears to be a qualitative difference in the way the intellectually highly able think, compared with more average-ability or older pupils, for whom external regulation by the teacher often compensates for lack of internal regulation . To be at their most effective in their self-regulation, all children can be helped to identify their own ways of learning – metacognition – which will include strategies of planning, monitoring, evaluation, and choice of what to learn. Emotional awareness is also part of metacognition, so children should be helped to be aware of their feelings around the area to be learned, feelings of curiosity or confidence, for example.

C. Yet in order to learn by themselves, the gifted do need some support from their teachers. Conversely, teachers who have a tendency to 'overdirect' can diminish their gifted pupils' learning autonomy . Although ' spoon-feeding ' can produce extremely high examination

results, these are not always followed by equally impressive life successes. Too much dependence on the teachers risks loss of autonomy and motivation to discover. However, when teachers o pupils to reflect on their own learning and thinking activities, they increase their pupils' self-regulation. For a young child, it may be just the simple question 'What have you learned today?' which helps them to recognise what they are doing. Given that a fundamental goal of education is to transfer the control of learning from teachers to pupils, improving pupils' learning to learn techniques should be a major outcome of the school experience, especially for the highly competent.

Questions 23-26

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

Write your answers in boxes ***23—26*** *on your answer sheet*

23. One study found a strong connection between children's IQ and the availability of .....at home.

24. Children of average ability seem to need more direction from teachers because they do not have .....

25. Meta-cognition involves children understanding their own learning strategies, as well as developing .....

26. Teachers who rely on what is known as .....often produce sets of impressive grades in class tests.

EXERCISE 8:

Cuba's Organic Revolution

Organic agriculture has been adopted as the official government strategy for all new agriculture in Cuba, after its highly successful introduction just seven years ago. In less than a decade the use of chemical pesticides has dropped by 80%. The catalyst which revolutionized the Cuban approach was the economic necessity after the collapse of the Soviet Union. Now the island is self-sufficient in organic fruit and vegetables, and organic livestock is also being reared successfully.

Even cabbage, which could not be grown in the past, because it was impossible to control the diamond black moth, now has yields of 60 tonnes per hectare without using fertilisers or pesticides. To meet the demands of a more labour intensive system of agriculture, the Cuban government has increased rural wages and is providing favourable housing for farm workers which also helps solve the problem of severe housing shortages and overcrowding in the cities. It is also making available abandoned land in urban areas for local communities to farm.

In one co-operative, 40 members are providing food for their own families, with plenty of surplus to provide for community elders, invalids and day care centres. Over 40 countries were represented at a recent Pesticide Action Network (PAN) conference in Cuba to challenge the view that pesticides are essential for agriculture. The Cuban experience added strength to their conviction that organic agriculture has a great deal to offer and has been unjustifiably ignored by agricultural researchers.

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

1. Cuba has used organic farming for _____.
2. The fall of the Soviet Union created an _____ to grow food.
3. The cultivation of cabbage was made possible after the _____ was killed.
4. Encouraging the development of agriculture has helped reduce _____.
5. A conference in Cuba promoted the view that pesticides were not _____ in farming.
6. _____ should focus more on organic farming.

EXERCISE 9:

When studying historical buildings, one can see a clear progression in construction materials. Before the medieval period, timber was the most widely used building material in Europe, but it came to be replaced by stone in most major structures. Even the use of metals was limited in structural architecture before the industrial age. At that time, metal was mainly used for bridges and greenhouses due to its limited aesthetic appeal. However, the public perception of manmade materials changed and technological progress brought down metalwork's cost, leading to it being used more. The first metal commonly used in architecture was cast iron, which 'could be formed into decorative shapes like stone.

Architects even began using cast iron to construct building frames. Unfortunately, this particular metal has a tow tensile strength and several of these buildings collapsed. To address this problem, builders turned to wrought iron and eventually to steel. As public opinion about manmade materials continued to char in the 19th century, the use of concrete became acceptable. The combination of steel and concrete was incredibly strong and allowed for the construction of taller buildings thoroughly changing urban

landscapes. Construction of the tallest building in the world. Dubai's Burj Khalifa, used 4,000 tonnes of steel in combination with 330,000 cubic metres of concrete and 55,000 tonnes of reinforcing steel rebar.

QUESTIONS: Choose **ONE WORD AND/OR A NUMBER** from the passage for each answer.

History of Architectural Materials

- Most pre-medieval buildings in Europe used **1**…….. construction.
- Stone construction became popular in the medieval period.
- Manmade materials were not widely used before the industrial age.
- Building the world's highest skyscraper utilised 330,000 cubic metres of concrete and **2** …….. of steel.

EXERCISE 10:

Prairie ecosystems are characterised by even terrain or gently sloping rolling hills, and by a predominance of herbaceous plant life. Trees, shrubs, and other woody plants are virtually absent in prairies, and there is very little shelter from the solar radiation and harsh breezes. Prairies generally receive a moderate amount of yearly precipitation, but summers are occasionally marked by severe drought. Consequently, for plants to thrive in the prairie ecosystem, they must endure seasonally dry conditions. Among the herbaceous plants suited for life in these ecosystems are prairie grasses, which have several adaptive mechanisms for survival.

Leaves of prairie grasses vary in width, but most are long, thin blades. On the epidermal layer of the leaves are small holes, called stomata, which can be opened to let in carbon _ dioxide and release oxygen, or closed to retain moisture. Because carbon dioxide is essential for plant photosynthesis, the stomata must remain wide for gas exchange; however, air spaces within the leaf are full of water vapour, which evaporates unless the pores remain

closed and presents a challenge during dry conditions. To overcome the problem, prairie grasses have evolved to distinguish between day and night. In the daytime, the grasses keep their stomata shut to minimise moisture loss. The plants then expand the pores in the evening when the air is cooler for respiration.

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

How Prairie Grasses Survive

Harsh prairie conditions

- Flat land with a few small hills
- A limited amount of protection from **1** ..... and high winds.
- Some rainfall every year, but summer months bring drought

Prairie grasses' evolutionary adaptation

- Stomata:

  Tiny holes on the **2**..... of the leaves
- Open to allow carbon dioxide in and oxygen out, or closed to preserve moisture
- The stomata remain closed during the **3** .....to decrease loss of water
- The plant pores are opened in the cooler night time air.

EXERCISE 11:

A placebo is an imitation medicine that doctors sometimes administer to patients. Although they contain no pharmacological substances, patients who are given placebos are often convinced that these sugar pills possess the power to alleviate their symptoms or even cure them of their illnesses. What is most remarkable is that sometimes, they do. This baffling psychological and medical phenomenon is known as the placebo effect.

Some medical practitioners believe that the apparent efficacy of placebos lies in the simple act of writing a prescription. Essentially, it is thought that patients assume their ailments can be overcome if it is possible to prescribe medications for them. This view is substantiated by studies indicating that a large percentage of those seeking medical treatment suffer from disorders that the body is capable of healing itself. However, patients strongly think otherwise, and this attitude makes them attribute getting better, when they eventually do, solely to the medication they were prescribed. This coupled with the trust they have in their doctor's ability to treat them, is what some say accounts for the positive performance of placebos.

Nevertheless, most experts strongly oppose medicating patients with placebos, suggesting the practice violates the doctor-patient relationship. Medical ethics standards maintain that trust is paramount and that doctors should be honest. However, some physicians are tempted to provide misinformation or gloss over the truth because they believe doing so is in the patient's best interests. For instance, a doctor may choose to present patients with a more optimistic picture of possible outcomes in order to convince them to undergo treatments they might otherwise reject. It is the hope that comes from believing it is still possible to be cured that can make all the difference in the end.

Further studies report of some patients learning they have been given placebos instead of actual drugs. In many cases, this causes patients to lose faith in their doctors, resulting in exacerbated symptoms and their health taking a turn for the worse. Due to the possibility of malpractice suits, the use of placebos in clinical practice has become increasingly uncommon. These days, placebos are almost exclusively administered in research situations where the subjects are informed that they may or may not receive a placebo and told about all potential risks in advance. In addition, policies are implemented to ensure that informed consent is observed, thus aligning standards for medical research and practice with the need for further investigation into the so-called placebo effect.

QUESTIONS: Choose **ONE WORD ONLY** from the passage for each answer

The Placebo Effect

How placebos work

• Some professionals think that a placebo's effectiveness could be due to a doctor making a **1** .....

• Research shows that many patients asking for medicine will heal without it.

• A patient's **2**..... makes them think any improvement they feel is due to medicine.

The opinion of doctors

• Most **3**..... are against giving patients placebos.

• The honesty of doctors is considered ethically important.

• Doctors sometimes think it's in the patient's best **4**..... not to tell the truth.

• The health of patients who find out they've been given placebos can become **5**.....

Current usage

• Today, placebos are mostly used for **6**.....

EXERCISE 12:

Found in Southeast Asia and Australia, weaver ants are most notable for their ability to construct nests from living leaves located high in the treetops. Like most ant varieties, a weaver ant's life revolves around providing for its queen. In fact, it is to serve her that they build their nests in the first place. It all starts with a queen founding a colony by laying a clutch of eggs on a leaf and raising the larvae until they become mature workers. In order to increase the size of the colony, the queen must lay more eggs, but this will require additional living space for the already mature ants. Thus, a nest must be built - a task that requires significant collaboration.

First, a single ant reaches toward a distant leaf. Unable to get to it alone, the other ants hold onto the first ant, forming a chain until the leaf is finally grasped. Once they have it, they pull as one until both leaves have been drawn together. Keeping the leaves in place, they wait for other workers to arrive carrying larvae, which are capable of producing silk. The larvae are prompted to release the silk from their salivary glands, and the worker ants dab the sticky substance from one leaf to another, essentially binding them. Ultimately, the process is repeated until a nest large enough to accommodate the colony's growing population has been constructed, and the cycle is likewise repeated each time the queen lays more eggs.

QUESTIONS: Choose **ONE WORD ONLY** from the passage for each answer

1. A ……establishes a colony by laying eggs and raising young.
2. The ants connect to form a……..in order to collect leaves.
3. The ..... of larvae sticks to the leaves of a nest.

EXERCISE 13:

Education's one of the most important issues addressed by societies. It provides people with the basic skills required to survive in the world, but it also allows them to make societal contributions, In fact, former American first lady Eleanor Roosevelt claimed that education was essential to good citizenship. Unfortunately, in large multicultural societies like the United States, educating the populace can be difficult. This, according to Dr. M. S. Rosenberg, is due to distinct cultural approaches to education. For instance, the parents of Asian-American students sometimes encourage them to sit quietly, listen intently, and avoid eye contact with their teachers, as these were the educational values of their cultures. This stands in stark contrast to the importance of classroom discussion and eye contact instilled in most European and American students. This problem can be magnified by the differing ways that cultures view the role of the teacher in the classroom. European or American parents often see the teacher as a participant in educating their children with whom they work. Many Hispanic cultures, on the other hand, regard teachers as experts and defer to them on nearly all aspects of educational decision-making.

Unfortunately, not understanding these cultural differences can have a major negative impact on students. Teachers who have been trained in the European and American style of education may see the active participation of students of that culture as superior to that of others. They may also see the involvement of European or American parents as a sign of greater concern for their children's educations. However, they could simply be misunderstanding cultural norms. In order to avoid these kinds of problems and to more effectively teach in a multicultural setting, teachers are trained to recognise cultural differences and to adapt their lessons and evaluation

styles to reflect them: In other words, they attempt to implement uniform education standards which allow for cultural diversity.

QUESTIONS: Choose **NO MORE THAN 3 WORDS** from the passage for each answer.

1. Education provides essential knowledge and the opportunity to make……
2. Failing to understand…… may have a significant negative effect on students.
3. Teachers are trying to put in place…… which respect different backgrounds.

EXERCISE 14:

Cinderella, Snow White, and Sleeping Beauty are all considered animated classics, but all three are actually based on stories published by two German writers commonly known as the Brothers Grimm. Although Jacob and Wilhelm Grimm are often referred to as the authors of these fairy tales, they did not actually come up with the stories themselves. The stories had been passed down through the oral tradition from one generation to the next in Germany and the surrounding regions long before the Brothers Grimm. However, the brothers, seeing that the stories were at risk of being lost, started documenting them. In order to do this, they interviewed friends, relatives, storytellers and aristocrats to learn the stories of the culture. After they had collected the stories, the Brothers Grimm set about putting them to paper. During the writing and editing processes, they combined differing versions of the same tales and edited them to impart a stylistic consistency and to improve the basic plots, thereby making them their own.

When it was finally published, their book Nursery and Household Tales was a blockbuster. It went on to be reprinted repeatedly and eventually had its

title altered to Grimm's Fairy Tales. Even though this is still the name we use for the book, the stories it contained were not exactly the same as the ones that we know today. Most of the brothers' original stories had more adult themes, as they had not been written for children. Overtime, the stories were edited to make them more appropriate for younger audiences and became staples of childhood libraries worldwide. In fact, their works have been translated into more than 100 languages.

QUESTIONS: Choose **NO MORE THAN 3 WORDS** from the passage for each answer.

1. The stories the brothers used were handed down by the ……
2. The brothers put together many different…… of the same story.
3. The book Nursery and Household Tales' original ……was changed after its first publication.
14. The. ……....in the brother's works show that they were not for young readers.

EXERCISE 15:

Environmental Conservation through Urban Density

The first image that comes to mind when considering environmental sustainability is usually not a densely packed urban landscape. However, since Compact City: A Plan for a Liveable Urban Environments released in 1974 by authors George Dantzig and Thomas Saaty, most urban planners agree that the most effective way to keep the planet green is to pack as many people as possible into compact cities. The most important reason to contain people in cities, they say, is to decrease sprawl, the expansion of urban areas into surrounding land. Not only does the infringement of human populations into undeveloped areas destroy arable soil and ecosystems, but it also creates suburbs that are energy inefficient and automobile dependent. Building cities upward rather than outward is the best way to avoid this.

If everyone lived in cities, the need for automobiles would be greatly reduced, which would minimise the pollution they cause and conserve the fossil fuels they require to operate. Studies show that people who live in densely populated cities, like New York, are 40 percent less likely to own cars and use far less gasoline because public transit is readily available and walking or cycling is often an option. The fact that driving in cities has become increasingly difficult also contributes to people giving it up. With parking restrictions and expensive toll fees to contend with, not to mention the glut of other vehicles that, sadly, remain on the road, many city dwellers simply choose not to drive when there are far more attractive transportation alternatives available.

But the environmental sustainability of cities has to do with more than just transportation: it's also about housing. The vast majority of people in high-

density cities live in apartment buildings, which are the most energy-efficient residential structures in the world. The shared walls of apartment buildings mean that less heat is lost and thus, less fuel is used to generate it. In addition, because apartments are usually smaller than, say, a typical single-family home in the suburbs, far less electricity is consumed per household - as much as 50 percent less than in sparsely populated areas, actually. It's thus no surprise that the carbon footprint of most high-density city inhabitants is around 30 per cent smaller than the global average.

Ultimately, while being shoulder-to-shoulder with millions of other people may seem unpleasant, it is the best way to handle our ever-growing population while preserving the resources that subsequent generations will need to survive. The cities that exist today are far from perfect, but that just means that there is still a lot that can be done from replacing diesel fleets with hybrid and electric ones to updating archaic, inefficient infrastructure - to make urban communities not only more sustainable but also nicer places to live.

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

1. The primary reason for containing people in cities is to limit……
2. A major decrease in the need for cars would reduce…… and save fossil fuels.
3. Due to their smaller size, urban apartments use less ……;……than suburban homes.
4. Living in densely populated cities is the best way to protect resources for future……..

EXERCISE 16:

Since they encompass such a wide spectrum of human behaviour, emotions have always been a central site of psychological study. One of the first figures to introduce a theory of emotion was the Greek philosopher Aristotle, who thought that they were connected to appetites. This idea held sway for centuries, until Charles Darwin formulated an evolutionary concept of emotions. Darwin suggested that emotions had evolved through natural selection and therefore must have a purpose. However, his ideas were supplanted as the field of psychology became more prominent.

A highly influential theory of how emotions work was developed independently by two scholars, William James and Carl Lange, in the late 19th century. This theory, which has came to be known as the James-Lange theory, suggested that physiological arousal leads to the experience of emotion. This was a reversal of the conventional conception that emotion was primarily mental in character. In James and Lange's conception, the body was the source of the emotional response. James suggested that the sense organs are the first part of the body to experience the stimulus of an outside object, and that the information from these is then passed to the brain.

As the James-Lange theory became the dominant conceptualisation of emotion in the early 20th century, it inspired criticism from other researchers. One critical response came from the Harvard physiologist Walter Bradford Cannon and his student Philip Bard in the 1920s. Cannon and Bard believed that emotional responses were the result of cognitive reactions within the hypothalamic structures of the brain, with the thalamic region being the centre of emotional response. According to Cannon and

Bard, the physical responses to emotion could be considered separate from the mental responses, and did not always precede them.

While the James-Lange theory foregrounded the body, and the Cannon-E prioritized the brain, the two-factor theory of emotion offered a more balanced approach. This theory - put forward by Stanley Schachter and Jerome E. Singer in the 1960s suggested that emotional reactions are based on two factors: physical arousal and mental labelling. Therefore, when a person experiences an emotion, they initially feel some form of physiological arousal, and then they search their environment for things they can use to label this as an emotion. This can occasionally result in misattribution, as when someone feels the physical symptoms of anxiety, but believes them to be related to romantic arousal. With no clear consensus emerging within psychological circles, it seems that the debate over whether It is in the mind or the body that emotions are formed is set to continue.

QUESTIONS: CHOOSE **NO MORE THAN TWO WORDS** FROM THE PASSAGE FOR EACH ANSWER

1. The James-Lange theory countered the traditional idea of emotion as a…….. experience.

2. James believed that the ..... experience a stimulus before the brain does.

3. The signs of..... can sometimes be confused with romantic sensations

EXERCISE 17:

Japanese and European medieval societies developed along similar feudal lines and in both, a warrior elite emerged as the dominant force. In both parts of the world, honour played an important part in their cultures, and knights and samurai were expected to follow their respective warrior codes, the 'Chivalric Code' in Europe and 'Bushido' (way of the warrior) in Japan. The codes were not set in stone, they differed from one clan or country to the next and changed down the ages; however there were several key factors in each that tended to be considered essential parts of the way a warrior should conduct his life. In both Europe and Japan throughout the Middle Ages the sword was considered the most noble weapon, and would contain spiritual significance to the warrior. The samurai famously believed that the legendary samurai sword contained its owner's soul and according to Richard Cohen in his book, 'By the Sword', the same sort of importance was put on the medieval knight's sword, which was believed to possess the essence of the warrior's inner power and true nobility. One of the main influences for this tradition in Europe was the poem 'Beowulf', who's sword 'Hrunting' would not allow its user to perform evil acts. Before battle, a knight would kiss the cross of his sword on the hilt in an act of religious significance made more so as this part of the sword often contained relics. Warriors from both regions had similar ideas about how a battle should be fought and it was generally agreed that charging into an enemy, then engaging in one-on-one combat was the noblest way to fight.

Although both preferred to fight in a 'gentlemanly' manner, this probably happened much more in fictitious accounts of warfare than on the real battlefield as the realities of war usually would not allow for formalities. Steve Turnbull highlights a case of this in his book, 'Samurai – A Military History'. 37 During the 'Gempei War' (1180-1185), in the 'Battle of Kurikara',

part of the Minamoto force engaged their vastly more powerful enemy, the Taira Clan, in a battle that was conducted in a formal and gentlemanly way. They started with an archery duel, followed by combat between small groups fighting one-on-one and then a pitch battle between one hundred warriors from each side. But the Minamoto had been keeping their enemy occupied and soon the realities of war returned. The Minamoto charged a heard of oxen with flaming pine torches attached to their horns into the Taira, driving them into a valley where they were trapped and subsequently slaughtered.

The chronicle the 'Heike Monogatari' states; "Thus did seventy thousand horsemen of the Taira perish, buried in this one deep valley; the mountain streams ran with their blood and the mound of their corpses was like a small hill; and in this valley, it is said, there can be seen the marks of arrow and swords even to this day". Both these codes helped to shape the ideals and values of their people. However, both often differed considerably in what they deemed honourable, suggesting that the definition of the word honour changed to suit the needs of the people involved in a given time and place. To the medieval knight, a defeated enemy of high social rank was to be captured and ransomed when possible but those of low birth could be slaughtered. To the Japanese, warriors were in battle to die and would be killed without mercy, whereas peasants were not warriors so there was no honour in taking their lives. To take an opposing warrior captive would be to take his honour from him so rather than be taken prisoner, a samurai would take his own life in a ritual known as 'Seppuku', an action that would not only lead to dishonour for the European Christian knight, but also to eternal damnation.

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

1. Both Japanese samurai and Medieval knights valued the importance of _____.
2. The sword in both Japan and Europe was said to be a _____.
3. Knights would _____ their sword before going into battle.
4. The idea of fighting like a gentleman was probably more _____ than real.
5. The Minamoto slaughtered _____ during the Gempei War.
6. The meaning of honour for both the Samurai and European knights _____.
7. A samurai would rather commit _____ than be captured by the enemy.

EXERCISE 18:

3D Printers and Human Tissue

Is 3D printing the future of medicine?

Although the technology for 3D printers has been around since the 1980s, it hasn't been so long that 3D printers became widely available commercially. The practice of producing three-dimensional solid objects of almost any shape from a digital model has since taken off exponentially, with virtually every sector of the economy eager to find ways to apply this technological breakthrough. While most people expect that 3D printing would be useful in fields such as architecture, construction, industrial design, and aerospace, few consider the implications of this technology for biotechnology and medical research. But, in fact, the ability to create live human tissue, and potentially even whole organs, is what has the medical community so excited.

For the last 20 years, medical researchers have been experimenting with ways to use the technology to create three-dimensional biological structures for medical purposes. To understand how this is possible, it's important to grasp how 3D printing works. The first step is to create a 3D image of the desired item using a computer-aided design software programme. The programme then slices the digital object into hundreds or even thousands of horizontal layers that become the blueprint for the printing stage. The actual printing is achieved using an additive process, in which the printer lays down successive layers of liquid, powder, paper or other material, from the bottom up to build the model from a series of cross sections. It then combines these layers to produce the final shape.

As soon as this technology came out, medical researchers thought, why not layer living cells just as with any other material, and thereby engineer biological structures such as tissue? Since the mid-2000s, biotech firms have

taken up this question. In only a few years, they achieved significant success in producing human tissues that preserve cell function and viability The types of human tissue that have thus far been successfully produced include bits of lung and heart muscles, as well as valves, and even a human ear. Experiments transplanting these tissues into laboratory animals have produced overwhelmingly positive results. Surgeons have also been able to implant some of this bioprinted* tissue - including skin and muscle - into human patients. While these advances are encouraging, the ultimate goal remains printing internal organs for humans in need of a transplant. Developing complex organs is a major challenge, especially in regard to creating one that has enough oxygen to survive until it can integrate with the body. One recent breakthrough at Harvard University's Jennifer Lewis lab has brought this closer to reality by creating the first 3D printed kidney tissues. Researchers at the lab came up with an innovative bioprinting process that allows them to print both the complex structures from which the kidney tissue is made, and the vascular systems which are necessary to keep the tissue alive. Using this system they were able to create a proximal tubule, a fundamental part of the kidney and the element responsible for filtering blood. The Jennifer Lewis team hopes to be able to manufacture a kidney in its entirety in a matter of years. Since around 10 per cent of the world's population suffers from chronic kidney disease, with many relying on machines to survive until they get a transplant, this could be a life-changing medical advance for millions of people. Scientists now believe that other 3D printed organs could also be available in less than a decade.

Aside from organ replacement, bioprinted tissue can also be used for medical research and drug development. For example, scientists have found that bioprinted silvers of the liver, although extremely tiny, respond to drugs in ways that are very similar to the full-grown human liver. This has allowed researchers to test the toxicity of new drugs before approving expensive

clinical trials with patients. The potential to save billions of dollars in clinical research each year has caught the attention of investors. There are other possibilities on the horizon as well. Several laboratories are currently developing bioprinters that could apply skin cells directly onto wounds. Working in conjunction with a laser, the printer would scan the size and depth of an injury and then produce a topological 3D map of the wound that would be used to determine how much material to deposit on the wound site. The same technology could be used to close wounds of the elderly or people with diabetes, whose bodies don't heal well. It could even eventually be a solution to simple surgeries such as stitches for large cuts. With all the ways that the bioprinting of tissues could be useful, it's no wonder that it's taking the medical community by storm.

** bioprinted: 3D print a biological structure (a tissue, an organ, etc.) using a bioprinter.*

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

1. In recent years, the practice of creating various 3D objects based on a ……..has exploded.
2. Before printing, a computer programme makes a blueprint by cutting a 3D image into numerous.....
3. In a short time, biotech firms made human tissues that maintained the .....and viability of cells.
4. A team at Harvard aims to produce a complete ……in a near future.
5. Researchers can now test the…….. of drugs prior to human trials.

QUESTIONS: Write **TRUE/FALSE/NOT GIVEN**

6. Most people understand the usefulness of 3D printing for medical research.

7. Tests of bioprinted tissue in animals have shown promising results.

8. Using 3D printed organs could reduce the cost of transplantation within 10 years.

9. Drugs affect small bioprinted pieces of liver as they do a whole liver

QUESTIONS: Complete each sentence with the correct ending, **A-G, below:**

10. Medical researchers have been conducting tests to
11. The eventual goal of bioprinting technology is to
12. A difficult task is making organs with sufficient oxygen until they can
13. Harvard researchers developed a process for creating structures that can
14. A laser and printer could possibly scan an injury and then

A make medical equipment.

B keep tissues alive.

C perform surgery unassisted.

D provide organs for transplants in humans.

E make 3D biological structures for use in medicine.

F fuse with the body.

G create a 3D map of the wound.