Test 1

READING AND USE OF ENGLISH (1 hour 15 minutes)

Part 1

For questions **1–8**, read the text below and decide which answer (**A**, **B**, **C** or **D**) best fits each gap. There is an example at the beginning (**0**).

Mark your answers on the separate answer sheet.

Example:

0 **A** choice **B** variety **C** diversity **D** selection

	A	B	C	D
0	o	●	o	o

Building roads with waste coffee

Used coffee grounds, which are left in coffee machines after cups of coffee have been made, are already recycled in a **(0)** ..... of ways. Now a team of scientists have discovered that they can also be **(1)** ..... to good use as a material for building roads.

Coffee lover and professor of geotechnical engineering Arul Arulrajah **(2)** ..... the idea of using them in this way after observing workers at his favourite coffee shops in Melbourne, Australia, **(3)** ..... throwing away used coffee grounds. He then **(4)** ..... several experiments to find something suitable to mix with the coffee grounds to **(5)** ..... the base layer under a road's **(6)** ..... .

According to Professor Arulrajah's estimates, the 150 kg of coffee grounds the team **(7)** ..... from Melbourne's coffee houses every week could create enough material to build about five kilometres of road per year. This would **(8)** ..... to a reduction in the amount of organic and industrial waste that ends up in the city's landfills.

LIVEWORKSHEETS

1	**A**	made	**B**	put	**C**	given	**D** got
2	**A**	considered	**B**	regarded	**C**	acknowledged	**D** realised
3	**A**	forgetfully	**B**	carelessly	**C**	neglectfully	**D** insensitively
4	**A**	controlled	**B**	directed	**C**	guided	**D** conducted
5	**A**	compose	**B**	form	**C**	position	**D** install
6	**A**	covering	**B**	ground	**C**	surface	**D** exterior
7	**A**	collects	**B**	keeps	**C**	saves	**D** stores
8	**A**	bring	**B**	come	**C**	lead	**D** arrive

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Part 2

For questions **9–16**, read the text below and think of the word which best fits each gap. Use only **one** word in each gap. There is an example at the beginning (**0**).

Write your answers **IN CAPITAL LETTERS on the separate answer sheet.**

Example: 0 | W | H | A | T |

The amazing Atacama Desert

When you think of a desert, **(0)** ..... first comes to mind? Is it a hot, dry and empty landscape? For the Atacama Desert in Chile, that image is only partly true. It is actually pretty cold, with daily temperatures ranging **(9)** ..... 0 to 25 degrees centigrade. But **(10)** ..... is certainly no doubt that the Atacama Desert is dry. Despite **(11)** ..... located right next to the Pacific Ocean, it's actually the world's driest desert, some parts of which have not had any rainfall for over 400 years. So it may come **(12)** ..... a surprise to learn that it does actually rain in this desert. Every five to seven years **(13)** ..... average, heavy rainfall soaks the landscape and then, all **(14)** ..... a sudden, something magical happens: the desert is transformed into a carpet of colourful flowers. This incredible sight lasts for just a **(15)** ..... short weeks and attracts thousands of visitors, eager **(16)** ..... enjoy such a rare occurrence.

LIVEWORKSHEETS

Part 3

For questions **17–24**, read the text below. Use the word given in capitals at the end of some of the lines to form a word that fits in the gap **in the same line**. There is an example at the beginning (**0**).

Write your answers **IN CAPITAL LETTERS on the separate answer sheet.**

Example: 0 | S | C | I | E | N | T | I | F | I | C |

Important helium gas discovery

Helium is a gas which is very important for the running of major **(0)** ..... facilities. It is also used in medical equipment like brain scanners. People use it for their **(17)** ..... too, filling party balloons with it so they float in the air. — **SCIENCE** — **AMUSE**

It is found **(18)** ..... inside rocks, and until recently, helium was only ever discovered **(19)** ..... and in small quantities. There was such **(20)** ..... among doctors over the steady decline in reserves that they called for a ban on its use in party balloons in order to help prevent a global **(21)** ..... of the precious gas. — **GROUND** — **ACCIDENT** — **ANXIOUS** — **SHORT**

The discovery of a vast reserve of helium in east Africa in 2016, therefore, came as a great **(22)** ..... . The store of helium found contains approximately 1.5 billion litres of the gas, **(23)** ..... have said. A team from the UK and Norway made this significant find after applying techniques normally used in the **(24)** ..... of oil and gas. — **RELIEVE** — **RESEARCH** — **EXPLORE**

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LIVEWORKSHEETS

Part 4

For questions **25–30**, complete the second sentence so that it has a similar meaning to the first sentence, using the word given. **Do not change the word given.** You must use between **two** and **five** words, including the word given. Here is an example (**0**).

Example:

0 Prizes are given out when the school year finishes.

PLACE

Prize-giving ..... end of the school year.

The gap can be filled by the words 'takes place at the', so you write:

Example:	**0**	*TAKES PLACE AT THE*

Write **only** the missing words **IN CAPITAL LETTERS on the separate answer sheet.**

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25 Because Alice was finding her book very interesting, she didn't hear the doorbell ring.

ABSORBED

Alice was ..... her book that she didn't hear the doorbell ring.

26 We missed the train because we didn't leave home early enough.

IF

We wouldn't have missed the train ..... home early enough.

27 I'm sure Diane can solve this maths puzzle.

CAPABLE

I'm sure Diane ..... this maths puzzle.

LIVEWORKSHEETS

28 I'll lend you my bike, but only if you look after it.

LONG

I'll lend you my bike ..... care of it.

29 'I don't want to help you with your homework, Sam,' said his sister.

WILLING

Sam's sister said she ..... him with his homework.

30 'I'm not going to miss my best friend's party!' Mary told her mother.

DETERMINED

Mary told her mother that she ..... to her best friend's party.

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LIVEWORKSHEETS

Part 5

You are going to read a magazine article about a teenager called Harry Dean who went on a freestyle ski jumping course. For questions **31–36**, choose the answer (**A**, **B**, **C** or **D**) which you think fits best according to the text.

Mark your answers on the separate answer sheet.

Learning freestyle ski jumping

by Harry Dean

'Remember, speed is your friend, not your enemy,' said Gareth, our instructor, as we looked down the ski slope. 'Now, who wants to go first?' The assembled group looked nervous. Then one guy, David, who'd had some experience of freestyle ski-jumping, and presumably wanted to preserve his reputation as someone who knew exactly what he was doing, pushed forward, skiing off down the slope towards the jump. He hit the approach ramp fast and flew
line 10 upwards, arms flailing in the air. Even to our untutored eyes, something was wrong. We held our breath. He hit the ground, losing both skis, and flipped head-first into the snow. 'Remember,' Gareth then kindly informed us, 'speed is an unpredictable beast.'

Perhaps I just wasn't cut out for this freestyle stuff. On previous skiing holidays, I'd enjoyed messing about, practising turns in the snow. I just wasn't one of those teenagers who spent their time doing freestyle tricks on ramps and half pipes in skateboard parks. Deep down, I'd always thought it looked fun, but reckoned that, with my lack of know-how, if I'd tried to join with the skateboarders, with their baggy trousers and special language, I'd have risked total ridicule.

Then my parents decided we'd have a winter holiday at a training centre for freestyle skiing in the USA. It had a huge indoor facility near the slopes, with trampolines, and ski jumps covered in artificial snow, from which students leapt, shrieking as they attempted their new tricks, then landed in pits of foam cubes. After practising their moves indoors, students headed outside. 'Progression is inevitable!' the centre's slogan cheerily assured us. 'Before places like this trained people up, inexperienced ski jumpers would just throw themselves down the slopes and hope for the best,' said Gareth. 'But remember – once you're on the real jumps, if you hit the knuckle, you'll be in trouble.'

The 'knuckle' Gareth was referring to is the flat section behind the jump before the slope steepens again to become the landing zone proper. Land in the zone and your motion continues forward, minimising impact. Land on the flat and you stop dead, which is painful. Hence the need for speed. At first, though, it was all but impossible to convince my body to ignore what my brain was screaming at me and to race straight towards the jump. My legs would virtually go into reverse as I neared the launch point, so I came slamming down onto the knuckle. I managed not to fall, but by midday I felt several centimetres shorter. 'You need to control the jump, not let it control you,' said Gareth.

Day two started on the trampolines in the centre. I'd expected to hate being stuck indoors, looking at the snowy peaks outside, but bouncing on the trampolines was addictive. Some of the drills copied moves we'd make while ski-jumping, others were aimed at teaching 'aerial awareness' – knowing what your body was doing as you spun in space. Gareth gave us a running commentary. My 'aerial awareness' apparently needed work – and it's true that, every time I tried, I was aware of the moment before take-off, and nothing more until I found myself lying in the foam cubes next to the trampoline.

We moved back to the mountain to try again. Inevitably, there were more setbacks before I finally landed properly. Gareth seemed as delighted as me, and for a few moments I was walking on air, with the sheer pride of having achieved such an elusive goal. But that was short-lived. On the final run of the day, I forced myself not to reduce speed as I approached the jump, became airborne, and came down appropriately in the landing zone. Then I noticed both skis sliding down the slope ahead, no longer attached to my feet.

LIVEWORKSHEETS

31 Harry suggests that David

- **A** had thought he would be in a more advanced group.
- **B** was a good role-model for beginners in the group.
- **C** had not listened to the teacher's instructions.
- **D** was not as skilled as he appeared to believe.

32 What is meant by 'flailing in the air' in line 10?

- **A** announcing his arrival
- **B** suitably positioned for jumping
- **C** waving around uselessly
- **D** raised high in victory

33 What does Harry say about his experience of freestyle sports?

- **A** His fear of failure prevented him from participating.
- **B** His natural ability was never fully recognised.
- **C** He discovered that his original opinion of freestylers was justified.
- **D** He regrets not having developed the skills necessary to do well.

34 During Harry's first attempts at ski jumping, he

- **A** felt inhibited by the warning he had been given.
- **B** struggled to overcome his natural instincts.
- **C** showed a determination to improve his technique.
- **D** regarded the fact that he remained upright as progress.

35 While training on the trampoline, Harry

- **A** resented the fact that he had to stay indoors.
- **B** wished he had realised how difficult he would find it.
- **C** failed to see the relevance of what he was asked to do.
- **D** felt that the criticism he received was fair.

36 When Harry returned to the slopes after his indoor training, he

- **A** managed several surprisingly competent jumps.
- **B** became convinced perfect jumps were impossible to achieve.
- **C** got into difficulty after managing a good jump.
- **D** suffered a loss of confidence before his last jump.

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LIVEWORKSHEETS

Part 6

You are going to read a magazine article about a painting created by a computer. Six sentences have been removed from the article. Choose from the sentences **A–G** the one which fits each gap (**37–42**). There is one extra sentence which you do not need to use.

Mark your answers on the separate answer sheet.

A computer-generated painting

Born in Amsterdam in 1606, Rembrandt Harmenszoon van Rijn is one of the world's most renowned artists. The prolific painter was famous for his portraits and was admired for his ability to capture realistic emotions. Unfortunately, like many artists of his time, Rembrandt's talents were not recognised during his lifetime. The artist died penniless in 1669, after suffering many years of hardship.

Interestingly, a painting unveiled in Holland in 2016 has made headlines around the world because it looks as if it was painted by the famous 17th-century Dutch artist. **37** It is, in fact, a brand new painting that uses technology to mimic his technique so perfectly that it could easily be mistaken for one created by the great artist himself.

The clever forgery, called the 'Next Rembrandt', took 18 months to complete and is the result of a collaboration between computer experts and art experts. The team collected data from the Dutch artist's 346 known paintings to help them imitate as closely as possible his technique, choice of colour, structure, texture and topic. They used facial recognition software and a unique computer programme to analyse the individual features of his style. **38**

The computer needed as much data as possible to enable it to mimic the artist's work accurately. Rembrandt painted a large number of portraits, many of which were of men with moustaches wearing black suits with white collars. **39**

They decided that the 'Next Rembrandt' would be a portrait of a white male between 30 and 40 years old, wearing black clothes, a white collar and a hat.

40 The special software system that the team had designed gathered information about Rembrandt's style based on his use of geometry, the way he placed the objects and people in relation to one another in his paintings and his choice of paint colours. The data was used to generate the facial features for the 'Next Rembrandt'.

The individual elements were put together to form the face and the chest in the same proportions as the original paintings created by the Dutch artist. **41** When this had been done, a 3D printer was used to bring the 'Next Rembrandt' to life. Comprising 148 million pixels and 13 layers of ultra-violet ink, the 'painting' is a clever forgery that looks exactly like an original Rembrandt, at least to the untrained eye.

The goal of the project was to start a discussion about how data and technology could become an essential part of the art world. The project was not universally popular, and did receive some criticism. **42** Their aim was to ensure that the 'Next Rembrandt' would be a masterpiece, one that even the famous Dutch artist would be proud of, and they seem to have succeeded.

LIVEWORKSHEETS

A However, many art historians, including Rembrandt experts, were incredibly supportive.

B Once the subject had been determined, the next stage of the process could begin.

C These included details like painting strokes, the artist's preferred angle and so on.

D As a result, they actually considered giving up on it at this point.

E The team then used technology to add depth and texture to their image.

F The authentic-looking masterpiece is not the work of Rembrandt, though.

G For this reason, the team settled on creating something similar.

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Part 7

You are going to read an article written by an architect about his work. For questions **43–52**, choose from the sections (**A–D**). The sections may be chosen more than once.

Mark your answers on the separate answer sheet.

In which section does the writer

warn that exercising may have the opposite effect to that intended?	43	
mention an increase in the size of something as the result of exercise?	44	
say even very gentle exercise can have a positive impact?	45	
explain why a comparison is a little misleading?	46	
give an example of an improvement in students' ability to focus?	47	
say what many people believed about the benefits of exercise has been proved correct?	48	
give advice on how to recall information more effectively?	49	
mention a doubt about why people sometimes experience a change of mood?	50	
warn that a particular type of exercise may not help with problem solving?	51	
welcome the idea of matching exercise type to particular mental challenges?	52	

LIVEWORKSHEETS

How physical exercise makes your brain work better

A The brain is often described as being 'like a muscle', however, this may not always be a helpful way of thinking about it. For example, if you want to improve the strength of your arms, you can exercise them and feel the results. When it comes to exercising your brain, this, of course, isn't possible. But it seems that by working your body's muscles you're actually benefitting your brain too. What's more, different physical activities can change the structure of your brain in different ways. As a result of research into how this happens, people will be able to select the form of exercise which best suits their needs – what to do if, for example, they want to perform well in a memory test – and this is good news. Researchers are still trying to work out why exercise seems to be so good for the brain. One possibility is that it increases blood flow. Exercise may also encourage the creation of new cells that are responsible for carrying messages between the brain and body. Until recently, few people thought this could happen in adult brains, but scientists now see this as a real possibility.

B It is well known that hard physical activity can have a positive effect on how you feel. For example, runners often get what's referred to as a 'runner's high' – that great feeling that follows intense exercise. Many people think this is due to endorphins, the chemicals in your bloodstream responsible for making you feel happy, rushing to your brain. However, although levels of endorphins rise in the bloodstream when you exercise, it's not clear how much actually gets into the brain. Research into this is still being carried out. The part of the brain that responds strongly to exercise is called the hippocampus. Experiments in children, adults and the elderly show that this brain structure grows as people get fitter. As the hippocampus is very important for learning and memory, this finding partly explains the memory-boosting effects of improved fitness.

C As well as slowly improving your memory, physical exercise can have a more immediate impact on the learning process itself. Researchers have shown that walking or cycling at the same time as trying to learn something new, for example foreign language vocabulary, is really helpful. So exercise while you revise. Don't push it too hard, though: extreme workouts can raise your stress levels, which, of course, can have a negative effect on your ability to remember things. Exercise can also help you to stay on task. In one study, allowing school pupils a 20-minute exercise session between lessons was found to improve their attention spans. Meanwhile, another study looked at the effects of daily after-school sports classes over a school year. The children, of course, got fitter. Less predictably, they showed greater levels of concentration in class: they became better at ignoring distractions and remembering and using what they'd learnt.

D And you may not have to get out of breath to improve your attention span. Just 10 minutes of play aimed at improving coordination skills, like bouncing two balls at the same time, has been shown to have real benefits for people's ability to concentrate. A lot of people have claimed that doing physical exercise, even just walking, makes you able to think more imaginatively. Psychologists have now found this to be the case. Walking, either outdoors or on a treadmill in a gym, can boost creative thinking. On the other hand, if you're struggling with your homework and looking for a single solution to a maths problem, then a relaxing walk isn't necessarily what you need. It seems that what you do with your body will inevitably affect your brain and how well you're able to learn new things. So get up and get active!

LIVEWORKSHEETS