ENGLISH ACADEMY

THINK ENGLISH – SPEAK ENGLISH

IELTS

Full name: .....

English name: .....

Class: .....

Score	Speaking	Listening	Writing	Reading	Total

READING PASSAGE 1

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

The potential to sniff out disease

The fact diseases have a smell comes as no surprise - but finding someone or something that can detect them at an early stage could hold huge potential for medicine.

Breath, bodily odours and urine are all amazingly revealing about general health. Even the humble cold can give off an odour, thanks to the thick bacteria-ridden mucus that ends up in the back of the throat. The signs are not apparent to everyone - but some super-smellers are very sensitive to the odours. Joy Milne, for example, noticed her husband's smell had changed shortly before he was diagnosed with Parkinson's disease.

Humans can detect nearly 10,000 different smells. Formed by chemicals in the air, they are absorbed by little hairs, made of extremely sensitive nerve fibres, hanging from the nose's olfactory receptors. And the human sense of smell is 10,000 times more sensitive than the sense of taste. But dogs, as the old joke might have had it, smell even better.

Their ability to detect four times as many odours as humans makes them a potential early warning system for a range of diseases. Research suggesting dogs' could sniff out cancers, for example, was first published about 10 years ago. And there have been many tales of dogs repeatedly sniffing an area of their owner's body, only for it to turn out to be hiding a tumour.

What they are smelling are the "volatile molecules" given off by cells when they become cancerous. Some studies suggest dogs can be 93% accurate. Others suggest they can detect very small tumours before clinical tests can. And yet more studies have produced mixed results.

Does cancer smell?

At Milton Keynes University Hospital, a small team has recently begun to collect human urine samples to test dogs' ability to detect the smell of prostate cancer. The

patients had symptoms such as difficulty urinating or a change in flow, which could turn out to be prostate, bladder or liver cancer.

Rowena Fletcher, head of research and development at the hospital, says the role of the dogs - which have been trained by Medical Detection Dogs - is to pick out samples that smell of cancer. Further down the line, a clinical test will show if the dogs' diagnosis is correct. She says the potential for using dogs in this way is far-reaching - even if it is not practical to have a dog in every surgery.

"We hope one day that there could be an electronic machine on every GP's desk which could test a urine sample for diseases by smelling it," she says. "But first we need to pick up the pattern of what the dogs are smelling."

And that's the key. Dogs can't tell us what their noses are detecting, but scientists believe that different cancers could produce different smells, although some might also be very similar.

Electronic noses

Lab tests to understand what these highly-trained dogs are smelling could then inform the development of 'electronic noses' to detect the same molecules. These might then give rise to better diagnostic tests in the future. The potential for using smell to test for a wide range of diseases is huge, Ms Fletcher says.

Bacteria, cancers and chronic diseases could all have their own odour - which may be imperceptible to only the most sensitive humans, but obvious to dogs. It may be possible in the future to use disease odours as the basis for a national screening programme or to test everybody at risk of a certain cancer in a particular age group.

However, there are fewer than 20 dogs in the UK trained to detect cancer at present. Training more will take more funding and time. On the positive side, all dogs are eligible to be trained provided they are keen on searching and hunting. Whatever their breed or size, it's our four-legged friend's astounding sense of smell which could unlock a whole new way of detecting human diseases.

Questions 1-5

Do the following statements agree with the information in the IELTS reading text?

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

1. You can have a specific smell even due to simple cold.

2. Human sense of taste is 10,000 less sensetive than human sense of smell.

3. Dogs and cats can sniff out different diseases.

4. Doctors believe that different cancers might have the same specific smell.

5. There are more than 20 dogs in the UK trained to detect cancer.

Questions 6-9

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

Write the correct letter in boxes **6-9** on your answer sheet.

6. All the studies suggest that dogs:

A. ○ Can be 93% accurate

B. ○ Can detect very small tumours

C. ○ Can't detect tumours at all

D. ○ Different studies have shown different results

7. What scientists give dogs to detect cancer?

A. ○ Urine samples

B. ○ Bacterias

C. ○ Different odours

D. ○ Nothing

8. What's an electronic nose?

A. ○ A specific tool for dogs

B. ○ A gadget to diagnose diseases

C. ○ A recovery tool for ill patients

D. ○ An artificial nose

9. The main objective of this passage is to:

A. ○ Bring awareness to the cancer problem

B. ○ Show us how good dogs are at detecting cancer

C. ○ Show us how important it can be to be able to diagnose a disease by an odour

D. ○ Tell us about new technologies

Questions 10-12

Complete the sentences below.

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

Write your answers in boxes **10-12** on your answer sheet.

10. Scientists hope that one day an _____ will be on every desk.

11. Electronic nose would help to detect the _____ .

12. Dogs can _____a new way of diagnosing diseases.

READING PASSAGE 2

You should spend about 20 minutes on **Questions 13-26**, which are based on Reading Passage 2 below.

Trash Talk

Sorting through a mountain of pottery to track the Roman oil trade

(A) In the middle of Rome's trendiest neighborhood, surrounded by sushi restaurants and nightclubs with names like Rodeo Steakhouse and Love Story, sits the ancient world's biggest garbage dump—a 150-foot-tall mountain of discarded Roman amphoras, the shipping drums of the ancient world. It takes about 20 minutes to walk around Monte Testaccio, from the Latin testa and Italian cocci, both meaning "potsherd." But despite its size—almost a mile in circumference—it's easy to walk by and not really notice unless you are headed for some excellent pizza at Velavevodetto, a restaurant literally stuck into the mountain's side. Most local residents don't know what's underneath the grass, dust, and scattering of trees. Monte Testaccio looks like a big hill, and in Rome people are accustomed to hills.

(B) Although a garbage dump may lack the attraction of the Forum or Colosseum, I have come to Rome to meet the team excavating Monte Testaccio and to learn how scholars are using its evidence to understand the ancient Roman economy. As the modern global economy depends on light sweet crude, so too the ancient Romans depended on oil—olive oil. And for more than 250 years, from at least the first century A.D., an enormous number of amphoras filled with olive oil came by ship from the Roman provinces into the city itself, where they were unloaded, emptied, and then taken to Monte Testaccio and thrown away. In the absence of

written records or literature on the subject, studying these amphoras is the best way to answer some of the most vexing questions concerning the Roman economy—How did it operate? How much control did the emperor exert over it? Which sectors were supported by the state and which operated in a free market environment or in the private sector?

(C) Monte Testaccio stands near the Tiber River in what was ancient Rome's commercial district. Many types of imported foodstuffs, including oil, were brought into the city and then stored for later distribution in the large warehouses that lined the river. So, professor, just how many amphoras are there?" I ask José Remesal of the University of Barcelona, co-director of the Monte Testaccio excavations. It's the same question that must occur to everyone who visits the site when they realize that the crunching sounds their footfalls make are not from walking on fallen leaves, but on pieces of amphoras. (Don't worry, even the small pieces are very sturdy.) Remesal replies in his deep baritone, "Something like 25 million complete ones. Of course, it's difficult to be exact," he adds with a typical Mediterranean shrug. I, for one, find it hard to believe that the whole mountain is made of amphoras without any soil or rubble. Seeing the incredulous look on my face as I peer down into a 10-foot-deep trench, Remesal says, "Yes, it's really only amphoras." I can't imagine another site in the world where archaeologists find so much—about a ton of pottery every day. On most Mediterranean excavations, pottery washing is an activity reserved for blisteringly hot afternoons when digging is impossible. Here, it is the only activity for most of Remesal's team, an international group of specialists and students from Spain and the United States. During each year's two-week field season, they wash and sort thousands of amphoras handles, bodies, shoulders, necks, and tops, counting and cataloguing, and always looking for stamped names, painted names, and numbers that tell each amphora's story.

(D) Although scholars worked at Monte Testaccio beginning in the late 19th century, it's only within the past 30 years that they have embraced the role amphoras can play in understanding the nature of the Roman imperial economy. According to Remesal, the main challenge archaeologists and economic historians face is the lack of "serial documentation," that is, documents for consecutive years that reflect a true chronology. This is what makes Monte Testaccio a unique record of Roman commerce and provides a vast amount of datable evidence in a clear and unambiguous sequence. "There's no other place where you can study economic history, food production and distribution, and how the state controlled the transport of a product," Remesal says. "It's really remarkable."

Questions 13-16

Reading Passage 2 has four paragraphs **A-D.** Which paragraph contains what information? Write the correct letter, **A-D**, in boxes **13-16** on your answer sheet.

13. Questions about the Roman economy

14. A unique feature

15. Description of the dump

16. Dialogue with a professor

Questions 17–21

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

17. World's biggest garbage dump is surrounded by restaurants and nightclubs.

18. The garbage dump is as popular as the Colosseum in Rome.

19. Ancient Roman economy depended on oil.

20. There is no information on how many amphoras are there.

21. Remesal says that Monte Testaccio is a great place to study economics.

Questions 22–26

Complete the sentences below.

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

Write your answers in boxes **22**–**26** on your answer sheet.

22. It is unknown for _____ what's underneath the grass, dust, and scattering of trees.

23. Monte Testaccio stands near the ancient Rome's _____ .

24. Remesal doesn't believe that the whole mountain is made of _____without any soil or rubble.

25. Remesal's team washes and sorts thousands of amphoras each year's two-week _____

26. _____ started working at Monte Testaccio in the late 19th century.

READING PASSAGE 3

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

The real risks of artificial intelligence

If you believe some AI-watchers, we are racing towards the Singularity – a point at which artificial intelligence outstrips our own and machines go on to improve themselves at an exponential rate. If that happens – and it's a big if – what will become of us?

In the last few years, several high-profile voices, from Stephen Hawking to Elon Musk and Bill Gates have warned that we should be more concerned about possible dangerous outcomes of supersmart AI. And they've put their money where their mouth is: Musk is among several billionaire backers of OpenAI, an orgnisation dedicated to developing AI that will benefit humanity.

But for many, such fears are overblown. As Andrew Ng at Stanford University, who is also chief scientist at Chinese internet giant Baidu, puts it: fearing a rise of killer robots is like worrying about overpopulation on Mars.

That's not to say our increasing reliance on AI does not carry real risks, however. In fact, those risks are already here. As smart systems become involved in ever more decisions in arenas ranging from healthcare to finance to criminal justice, there is a danger that important parts of our lives are being made without sufficient scrutiny. What's more, AIs could have knock-on effects that we have not prepared for, such as changing our relationship with doctors to the way our neighbourhoods are policed.

What exactly is AI? Very simply, it's machines doing things that are considered to require intelligence when humans do them: understanding natural language, recognising faces in photos, driving a car, or guessing what other books we might like based on what we have previously enjoyed reading. It's the difference between a mechanical arm on a factory production line programmed to repeat the same basic task over and over again, and an arm that learns through trial and error how to handle different tasks by itself.

How is AI helping us? The leading approach to AI right now is machine learning, in which programs are trained to pick out and respond to patterns in large amounts of data, such as identifying a face in an image or choosing a winning move in the board game Go. This technique can be applied to all sorts of problems, such as getting computers to spot patterns in medical images, for example. Google's artificial intelligence company DeepMind are collaborating with the UK's National Health Service in a handful of projects, including ones in which their software is being taught to diagnose cancer and eye disease from patient scans. Others are using machine learning to catch early signs of conditions such as heart disease and Alzheimers.

Artificial intelligence is also being used to analyse vast amounts of molecular information looking for potential new drug candidates – a process that would take humans too long to be worth doing. Indeed, machine learning could soon be indispensable to healthcare.

Artificial intelligence can also help us manage highly complex systems such as global shipping networks. For example, the system at the heart of the Port Botany container terminal in Sydney manages the movement of thousands of shipping containers in and out of the port, controlling a fleet of automated, driverless straddle-carriers in a completely human-free zone. Similarly, in the mining industry, optimisation engines are increasingly being used to plan and coordinate the movement of a resource, such as iron ore, from initial transport on huge driverless mine trucks, to the freight trains that take the ore to port.

AIs are at work wherever you look, in industries from finance to transportation, monitoring the share market for suspicious trading activity or assisting with ground and air traffic control. They even help to keep spam out of your inbox. And this is just the beginning for artificial intelligence. As the technology advances, so too does the number of applications.

So what's the problem? Rather than worrying about a future AI takeover, the real risk is that we can put too much trust in the smart systems we are building. Recall that machine learning works by training software to spot patterns in data. Once trained, it is then put to work analysing fresh, unseen data. But when the computer spits out an answer, we are typically unable to see how it got there.

There are obvious problems here. A system is only as good as the data it learns from. Take a system trained to learn which patients with pneumonia had a higher risk of death, so that they might be admitted to hospital. It inadvertently classified

patients with asthma as being at lower risk. This was because in normal situations, people with pneumonia and a history of asthma go straight to intensive care and therefore get the kind of treatment that significantly reduces their risk of dying. The machine learning took this to mean that asthma + pneumonia = lower risk of death.

As AIs are rolled out to assess everything from your credit rating to suitability for a job you are applying for to criminals' chance of reoffending, the risks that they will sometimes get it wrong – without us necessarily knowing – get worse.

Since so much of the data that we feed AIs is imperfect, we should not expect perfect answers all the time. Recognising that is the first step in managing the risk. Decision-making processes built on top of AIs need to be made more open to scrutiny. Since we are building artificial intelligence in our own image, it is likely to be both as brilliant and as flawed as we are.

Questions 28-36

Complete the sentences below.

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

Write your answers in boxes 28-36 on your answer sheet.

28. Singularity is the point, where AI _____ our own machines.

29. Many people, including Stephen Hawking, Elon Musk and Bill Gates warned us about possible _____ of supersmart AI.

30. According to Andrew Ng, fearing a rise of _____ is similar to worrying about overpopulation on Mars.

31. There is a danger that many important parts of our lives, like healthcar, finance and _____ will be without sufficient scrutiny.

32. Simply put, AI is machines doing things that are considered to require _____ when humans do them.

33. Nowadays, the main approach to AI is _____ .

34. DeepMind in collaboration with the UK's National Health Service works on many projects, including the one where software learns how to _____ and eye disease.

35. In the nearest future machine learning could be _____ to healthcare.

36. AI might also help in managing _____ networks.

Questions 37-40

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

In boxes 37–40 on your answer sheet, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

37. AI works in many different industries nowadays.

38. We shouldn't put too much trust in AI in the future.

39. The quality of the data doesn't affect the ability of AI to learn information correctly.

40. We can get perfect answers from AI all the time.

WRITING TASK 2

You should spend about 40 minutes on this task.

Write about the following topic:

> ***International tourism has brought enormous benefit to many places. At the same time, there is concern about its impact on local inhabitants and the environment.***
>
> ***Do the disadvantages of international tourism outweigh the advantages?***

Give reasons for your answer and include any relevant examples from your own knowledge or experience.

Write at least 250 words.

The End of the Test.