



福建中學

FUKIEN SECONDARY SCHOOL

S6 Mock Examination (2021-2022)

English Language Paper 1

Reading

Reading Passages

(1 hour 30 minutes)

Date: 11th January 2022

Time: 8:30a.m.-10:00a.m.

Name: _____

Class: _____ No.: _____

INSTRUCTIONS

1. Write all your answers in the Question-Answer Book.
2. DO NOT write any answers in the booklet because they will not be marked.

PART A

Read Text 1 and answer questions 1–20 in the Question-Answer Book for Part A.

Text 1

Cheesy feet aren't just an embarrassment — understanding the stench could save lives

David Robson delves into the strange ecosystems between your toes.

- [1] Renate Smallegange is something of a connoisseur of smelly feet — and she goes to surprising lengths to study their odours. Sometimes she'll collect worn nylon socks that have become imbued with the fragrance. If that's not good enough, she asks people to rub their feet on glass beads and wipe their sweaty skin on the surface. When she's being really picky, she'll trap the feet in a plastic bag, allowing her to draw up the aroma in gusts of air.
- [2] Of all the jobs in the world, it's certainly not the most pleasant, but Smallegange is mostly unperturbed by the occasional whiff of cheese. 'It's not a big deal,' she tells me. 'Of course some people do smell nicer than others — from my personal point of view.'
- 10 [3] Not everyone finds the stink so discomforting. While a strong stench may cause Smallegange to politely hold her nose, however, it happens to be a real turn-on for the other objects of her study: malaria-carrying mosquitoes. For this reason, Smallegange has been trying to find the unique recipe that gives our feet their odour, in a quest to help stem the spread of that deadly disease.
- 15 [4] No matter how clean you are, a slight odour is almost inevitable, given the anatomy of our feet. The average foot contains 600 sweat glands per square centimetre — hundreds more than the armpits. They secrete a nutritious soup of salts, glucose, vitamins, and amino acids that provides the perfect diet for a colony of bacteria. In return for the free lunch, the bacteria leave us with a cocktail of fatty acids that together give rise to the signature musk.
- 20 [5] There are so many bacteria living on our feet that microbiologists have had a hard time finding exactly which species cause the stench, and where they live on the foot. Showing remarkably little vanity, James Reynolds at Loughborough University and colleagues recently attempted to answer this question by mapping out the populations on their own feet.
- 25 [6] Five groups stood out: *Corynebacteria*, *Micrococci*, *Propionibacteria*, *Betaproteobacteria* and *Brevibacteria* — but the biggest offender appeared to be *Staphylococci*. Tellingly, it always seemed to coincide with a particularly potent chemical, called isovaleric acid: 'If you imagine a well-aged stilton — that's the smell you get if you open a bottle of the stuff,' Reynolds says. 'If you spill a drop in the lab you'll smell it all afternoon — it's horrible.' What's more, they were most common on the sole, rather than the top — with particular high numbers around the ball of the foot — perhaps explaining why these are the smelliest areas. The comparison to cheese is appropriate. Many cheeses contain a similar mix of volatile chemicals,
- 30 with Limburger cheese apparently offering the closest comparison.
- [7] Eventually, these findings may pave the road to a more fragrant future. 'If we know what these compounds are and the species that produce them, we could make clothing that absorbs the smell or neutralises it,' says Reynolds. It could also lead to better deodorants. The task will be tricky — alongside the smelly bacteria, our feet harbour some potentially friendly organisms that act as gatekeepers against infection. But nature may already have some answers. A recent Japanese study found that three chemicals commonly found in citrus fruits can help target the *Staphylococcus* bacteria without harming its neighbours.

40 [8] In some situations, foot odour is much more serious than slight embarrassment, however — it might be a matter of life or death. Dutch scientist Bart Knols was one of the first to notice that certain species of malaria-carrying mosquitoes are attracted to the smells wafting from our feet. His work has since inspired many of Smallegange's latest studies at Wageningen University in the Netherlands.

45 [9] She has found, for instance, that the malaria parasite seems to alter the mosquitoes' sense of smell so that they are even more attracted to smellier feet, swarming to worn socks like bees to a flower bed. 'There is some evidence that some proteins in the head of the mosquito change somehow, and they have a role in the olfactory response of mosquitoes,' says Smallegange. It's a devious mechanism that leads the malaria's host to home in on potential victims, so that it can continue its life cycle in a human body. 'It's why the mosquito is such a good vector of malaria.'

50 [10] There are many ways this knowledge could help the fight against malaria. Smallegange has also examined whether the particular combination of smell-producing bacteria on feet can alter your chances of being bitten; as you might expect, those hosting more *Staphylococcus* tend to be more attractive. Attempts to combat those bacteria could therefore offer some protection against the deadly disease.

55 [11] Alternatively, the siren call of the odour could be used to bait mosquito traps. One idea has been to bait traps with used socks; they seem to maintain their allure for at least 8 days after wear. If that seems like a waste of good underwear, Knols has also found that Limburger cheese seems to do the trick. Smallegange, meanwhile, is hoping to bottle the smell — using isovaleric acid and other components to produce her own, synthetic odour. (You could call it 'eau de pied'.) 'The combination is very important,' she says. 'In general, a blend is more attractive than a single component.' It's possible that you will need to use different recipes for different species of mosquito, though — each may have their own particular tastes.

60 [12] It's unclear exactly how effective these measures will be for protection. A small trial in Rusinga Island, Kenya is currently investigating whether the traps can kill or distract enough mosquitoes to reduce the overall number of bites and infections. At the very least, they could be used for an early warning — to detect whether malaria-carrying mosquitoes are already breeding nearby.

65 [13] For most of us, cheesy feet are no more than an inconvenience which can be temporarily fixed with a shower. But Smallegange's pursuits are worth bearing in mind, whenever you catch a whiff of your under-soles. With her collection of smelly socks, skin swabs and 'eau de pied', she is doing a job that few of us could stomach, all in the hope of saving lives. And that's a mission that's not to be sniffed at.

Text permission: Copyright © 2021 BBC

END OF READING PASSAGE

PART B1

Read Texts 2–3 and answer questions 21–42 in the Question-Answer Book for Part B1.

Text 2

Below is an extract from an online forum where some friends are discussing the upcoming opening of a new pet cafe.

SUBJECT: Big news!		
Mikey 14 Oct 2021, 7.21 p.m.	[1] I have some big news, and I'd like to get some ideas from you about it. My uncle wants to open a second cafe. He's already leased a space quite near our school. He'd like his new cafe to attract younger customers, and he's asked me for ideas about how to do this. The first thing that popped into my head was 'pet cafe'. More and more young people are getting pets these days, and not just cats and dogs, but also gerbils, iguanas, etc. There aren't any pet cafes in the area, so I think my uncle's would become a popular hangout for young people. What do you guys think?	5
Susan 14 Oct 2021, 7.42 p.m.	[2] What a great idea! I know lots of teens who have really interesting pets, and I'm sure they'd love to go to a cafe where they can show off their little buddies. Would your uncle keep his own pets at the cafe? I ask because there are different kinds of pet cafes. Some have cats, dogs, birds, hamsters and other pets that live in the cafe and interact with customers, while others allow customers to bring their own pets into the cafe with them. I think your uncle's pet cafe should tick both boxes. This would allow him to pull in as many customers as possible.	10
Robbie 14 Oct 2021, 8.11 p.m.	[3] Are pet cafes still a thing? I know they were popular 10 years ago, but I haven't seen any in a long time. I'm not sure your uncle should invest in a dying trend. What about a sports cafe? He could put up lots of TVs showing football and rugby matches. I'd be a regular at a cafe like that!	15
Emily 14 Oct 2021, 8.24 p.m.	[4] For me, the type of cafe isn't important — it's all about the menu! I only go to places with first-rate food and drinks. I've been to your uncle's other cafe, and his cappuccinos are to die for! I'm sure the menu at his new place will be just as good. I think it should cater to young people. It could have specials on certain days, like 'Teen Tuesday' with a special teen menu, or a 'Teen Hour', with reduced prices for teens on schooldays.	20
Mikey 14 Oct 2021, 9.17 p.m.	[5] Good point, Susan — I think the cafe should allow customers to bring in their own pets, but it should have some live-in ones as well. My uncle has three cats at home, so they could become part of the 'staff'! He's an animal lover, so I'm sure he'll want to get a few more critters from a pet shop or an animal shelter. I've already emailed him some information on different types of animals he could choose. Oh, and if anyone can suggest a good name for the cafe, let me know!	25
Peter 15 Oct 2021, 8.11 a.m.	[6] I can't wait for the cafe to open! I'm going to bring Bucky, my pet hamster. He loves to climb up and down people's trouser legs, so he'll be a smash at the cafe! What do you think of 'Pet Place'? Pretty catchy, eh?	30
Robbie 15 Oct 2021, 8.57 a.m.	[7] I think your uncle should go with 'Champs' and forget the whole pets idea. Hang football and rugby team flags around the cafe instead. Imagine how busy it would be when there's a championship game on!	35
Emily 15 Oct 2021, 9.22 a.m.	[8] Your idea has a ring to it, Peter, but what about swapping 'Place' for 'Palace'? This would keep the two 'P' sounds, while adding a bit more pizzazz! Who wouldn't want to drink tea and hang out with pets in a palace?	

Mikey [9] Thanks, everyone! I'll share your ideas with my uncle at tonight's family dinner. Also, he's invited me to go see the new location with him this weekend. If you want to come along, let me know. I'll give you the address and you can meet us there. I can't wait to hang out with you guys at Pet Palace!

40

Text 3

Below is a flyer with information about possible pets for the pet cafe.

Possible pets for the pet cafe			
Name of animal	Type of animal	Care requirements	Notes
Frog	Amphibian	- Frogs require feeding only two or three times per week. - They eat worms, caterpillars, grasshoppers and other insects.	- Some species are poisonous. - Suitable species for first-time pet owners include tree frogs and African dwarf frogs.
Gerbil	Mammal	- Gerbils require daily petting. - Feed them proper gerbil food. - The cage must be kept clean. Check it daily and remove any stale food.	Gerbils are social animals, so keep at least two together in a cage of about 35 by 70 cm.
Guppy	Fish	- Tank water needs to be kept at 24–28°C and circulated with a filter system. - Change tank water at least once a month. - Feed guppies two to four times daily with proper guppy food.	- Guppies are interesting to watch, and can help people feel calm and relaxed. - Guppies can get lonely, so keep at least two together in a tank.
Iguana	Reptile	- Iguanas require a heated tank or cage (24–27°C in the cooler areas and 35–38°C in the basking areas) lit with special UVB lightbulbs. - They eat special iguana food, but also love fruits and vegetables.	- Iguanas love climbing, so fit a vertical structure in the tank or cage. - They love to hide, so they need small hiding areas.
Rabbit	Mammal	- Rabbits require a 1.2 by 1.2-metre cage. - Place a litter box in a corner of the cage for them to use as a toilet. - Feed them rabbit pellets and give them plenty of hay to eat and sleep on. - Only give vegetables occasionally.	- Rabbits like to live in pairs, but some prefer to live alone. - Provide cardboard boxes for them to chew and play in.

END OF READING PASSAGES

PART B2

Read Texts 4–6 and answer questions 43–65 in the *Question-Answer Book for Part B2*.

Text 4

Title: _____

‘We have discovered the secret of life!’

[1] How do living creatures reproduce themselves? In 1953, this was the central question of biology — that is, until two Cambridge University scientists published the answer in an article in *Nature* magazine. According to James D Watson and Francis Crick, the key to the reproduction process was a chemical called deoxyribonucleic acid (DNA) — the material that makes up genes, which enable parents to pass their biological characteristics down to their children. On 28th February, the two scientists celebrated their momentous discovery in a Cambridge pub, with Mr Crick uttering what would become one of the most iconic quotes in science. Also of major importance is the earlier research of Medical Research Council scientists Maurice Wilkins and Rosalind Franklin, whose groundbreaking work on X-ray diffraction photography made Watson and Crick’s discovery possible.

Text 5

Title: _____

[1] In 1798, English doctor and scientist Edward Jenner — the ‘father of inoculation’ — pioneered the world’s first vaccine. He injected a patient with materials from a cow suffering from cowpox. This stimulated the patient’s body to produce antibodies that could defend against smallpox. Since then, vaccines have been used to protect against many diseases — from polio to chickenpox to the common flu. Then came the SARS outbreak of 2002, and vaccination changed.

[2] Scientists got to work on a new family of vaccines — messenger ribonucleic acid (mRNA) vaccines — which had been trialled in mice in 1990. Fifteen years after SARS subsided in 2004, another virus burst onto the scene — Covid-19 — resulting in the deaths of nearly five million people worldwide in just two years. The global pandemic provided an ideal opportunity for the international scientific community to come together to produce the world’s first mRNA vaccine, with the initial wave of jabs being administered in the UK in early December of 2020.

[3] As more and more people get mRNA jabs, misinformation is also on the rise. A quick scroll through YouTube reveals countless videos advancing mRNA conspiracy theories. The speakers warn against side effects ranging from death to infertility to permanently altered human DNA to skin magnetisation. The main cause for this spike in misinformation is that most people just do not know how mRNA vaccines work. To reach their true potential, this needs to change.

[4] Unlike traditional vaccines, which transport a weakened form of the virus into the body, mRNA vaccines ‘teach’ cells how to make a protein that will cause the body to produce an immune response when exposed to the real virus. In the case of Covid-19, the vaccine gets the cells to make a ‘spike protein’ found on the surface of the virus. Afterwards, the cells break down these special instructions and dispose of them (usually in 72 hours or less).

[5] Then the cells display the protein on their surface, which compels the immune system to create suitable antibodies that will fight against the virus in the case of infection — the same thing that happens when a person is naturally infected with Covid-19. This learned reaction never goes away, providing the vaccinated person with protection against future infection — although booster jabs may be required to maintain the vaccine’s effectiveness.

Text 6

Title: _____

[1] You've heard of designer clothes, but what about designer babies? The term refers to a process that was once limited to science fiction, but has become not just possible, but probable — thanks to modern science. Designer babies are newborns whose genetic makeup has been customised during the foetal development stage to protect them from defects and diseases, and to make them more physically and intellectually advantaged. The practice remains illegal, but experts agree that it's only a matter of time until it becomes a reality. Two professors in the field of genetics, Dr Robert Leung and Dr Sarah Kwok, debated the issue during a recent *Medical Matters* podcast.

[2] Dr Leung: Having a designer baby sounds enticing to parents as they think they'll be able to customise their unborn child the same way they'd customise a new house or outfit — but the reality is very different, and potentially dangerous. The science behind the procedure is too new and too much is still unknown to rule out harmful side effects. For example, editing out the risk of cancer or HIV could result in the baby experiencing other serious diseases. To paraphrase the celebrated scientist Sir Isaac Newton, every action has an equal and opposite reaction.

[3] Dr Kwok: I agree with Newton's Third Law, but it applies to physics, not scientific advances. You could say the same thing about every scientific breakthrough in history. Scientists are never absolutely certain their work won't produce negative consequences, but they minimise these risks by doing extensive research. In fact, the data behind designer babies indicates that human life expectancy will be greatly increased. Humans will be safe from cancer and other life-ending diseases. Some studies suggest that designer babies will live 30 years longer on average. If the main goal of science and medicine is to preserve human life, this seems like a good way to do it.

[4] Dr Leung: What about the decrease in human genetic diversity? Over time, parents would choose the same characteristics for their children — to be immune to cancer, to be tall and slim, to avoid baldness for males, to be fertile for females — and this would lead to a shrunken gene pool for the human race. New diseases and defects thrive in small gene pools. Genetic diversity is vital to the longevity of the human species, and designer babies would undercut this.

[5] Dr Kwok: I concur with you on the importance of genetic diversity. However, I think your logic linking designer babies with a shrunken human gene pool is flawed. The human genome is so vast that it will allow for endless possibilities for customisation. Sure, most parents will probably opt for immunity to cancer, but there are so many other options available that the diversity — which you correctly call vital — will undoubtedly endure.

[6] Dr Leung: Don't forget about the social consequences. As with any new technology, designing babies wouldn't come cheap, making it available only to the wealthy. Soon, society would be made up of two kinds of people: those who are designed and those who aren't. The wealth gap is already a huge problem in society, causing inequality and all the social strife that comes with it. Having designer babies would only worsen the situation.

END OF READING PASSAGES

