Cambridge Assessment International Education

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FIRST LANGUAGE ENGLISH **0500/12**

Paper 1 Reading **October/November 2021**

INSERT **2 hours**

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INFORMATION

- This insert contains the reading texts.
- You may annotate this insert and use the blank spaces for planning. **Do not write your answers** on the insert.

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Read **Text A**, and then answer **Questions 1(a)–1(e)** on the question paper.

Text A: The whirlwind engineering history of the bicycle

This text is about how the bicycle has been through many engineering changes over the years.

Stridewalkers, Boneshakers, Penny-farthings: the bicycle has undergone some curious transformations. Fetch your helmet – here's a whistle-stop tour of the bike's 200-year history.

Step forward German inventor Karl Drais, who in 1817 patented the design for his 'Laufmaschine' (running machine). Riders carefully straddled a wooden frame and – without pedals and chain propulsion – pushed their feet along the ground to get the wheels moving. Hence the distinctly sci-fi sounding nickname, Stridewalker.

Pedals were introduced later, developed in 1863 by Pierre Michaux. The bicycle was called the Velocipede and had wheels designed to enable a person to ride along rail tracks. Hmm. Unsurprisingly, on the cobbled streets of that time, the wooden-rimmed wheels earned Michaux's bicycle the nickname, 'Boneshaker'.

Fast-forward 7 years to 1870. It might have looked ridiculous with its huge wheel at the front and little wheel at the back, but the Penny-farthing was built to serve a very practical need: the need for speed. Without gears, the only way to increase bicycle speed was to increase the size of the wheel attached to the pedals – and the availability of steel meant large wheels were a simpler engineering challenge than wood.

Unfortunately, Penny-farthings were incredibly difficult to mount and ride. During the late 1870s an alternative was invented, marketed as the Safety Bicycle for obvious reasons. With a chain drive that allowed the rider to sit at the centre of the frame and a height that made it easy for riders to reach the ground, the Safety Bicycle fuelled the surge of bicycle popularity in the 1890s. The same design, with wheels that are broadly the same size, is used to this day. So, for the last 140 years all we've been doing is tweaking a design classic.

So who needs nuclear power when you've got a bicycle?

That's what the health-conscious listeners of a radio programme decided recently when they voted the bicycle the most significant innovation in technology since 1800. In winning the poll, the bike saw off its more expensive transport rival, the car, as well as many young listeners' favourite, the internet. Advances in medical science (popular with older generations) were also rolled over by the two-wheeled favourite.

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Read **Text B**, and then answer **Question 1(f)** on the question paper.

Text B: Finding my feet again

This text is about a world-class cyclist, Denise, who had her right leg amputated below the knee after a childhood accident.

After my accident I had to fight for my own two legs.

Considering my physical setbacks, it would have been easy to let doubt from others or myself erode my ambitions. People would say, forget it, this isn't possible. But I learned that transformation starts through the process of swimming against the stream.

Just like every other athlete, I love my sport and I'm energised by the highs it gives me, but we live in a society that has certain reinforced norms. One of them is the idea that as a disabled woman I should be happy that I can walk; why compete in elite-level sports? Another is the fear that heavy athletic exertion will harm me.

I also navigate another general perception around people with disabilities. I still wanted to feel attractive despite my missing limb. This was difficult, especially in a society that attaches great importance to physical appearance.

The most exhilarating experience in my life so far was becoming the first female paracyclist to complete a prestigious mountain tour over seven days. It was 865 kilometres long with 18,000 metres of near-vertical climbing. The strong weather fluctuations and the hours of climbing severely tested even able-bodied competitors. All were physically and mentally at their limit multiple times.

So I tasted success and experienced fulfilment. But it had been a slow process from the first time I tentatively mounted my adapted bike and allowed my coach to position the foot of my prosthetic leg into the adapted pedal. In the beginning I had to have my foot held in position, but as time went by, I learnt exactly where the foot was, and my perfect leg no longer dominated. This realisation took many sessions of patient and individualised coaching. Falling from my bike was another setback, but I re-mounted and gritted my teeth.

The cost of an adapted bike worried both myself and my family. In fact, thoughts of how I might be a financial burden to my parents nearly put me off. Fortunately, we found funding sources for my bicycle – though we did have to look hard to find them and wait for them to consider my case. Ironically, now that I am successful, there are sponsors looking for me!

Read **Text C**, and then answer **Questions 2(a)–(d)** and **Question 3** on the question paper.

Text C: Moving on upwards

This text is taken from a longer narrative. At this point in the story, the narrator is taking part in a bicycle ride uphill for his fiftieth birthday celebration.

Their car rounds the bend ahead, Sonny's phone screen winking at me from the window.

Time for another gulp of water. My bottle crackles as I squeeze it and a thick stream shoots into my mouth. Too much. The excess liquid splatters fatly on the greedy asphalt, and I realise it may be the one crucial drop I will be crying out for on my final kilometres to the summit.

This novel adventure was a gift to myself. I'd reached the big 5-0. More a milestone than a birthday. Inviting the family around for cake and crisps wasn't going to be enough. No, what I needed was a challenge to prove that what my teenage son, Sonny, called my 'sinking into old age' did not have to match a decline in physical fitness. My friend Rob, agreed to come along with me – in the comfort of his car.

So here they are, Rob at the wheel and Sonny, who has brought along his mobile phone, so that he can capture the whole event. His job is to make an 'official birthday video' (with soundtrack) on his computer when we get home. This, I am assured, will provide much family entertainment in years to come. 'After all, Dad, you're really brave wearing lycra at your age,' he had informed me.

I hear the car change gear ahead of me. As if I need reminding that things are going to get steeper.

Though I am keeping to the outside of the bend, I feel the tension in my thighs increasing in a matter of metres. Ahead lies the notorious forest where many a dismayed cyclist is forced to dismount after kilometres of hard labour.

The car has slowed down and is back alongside, Sonny capturing every second of my first metres through the forest in glorious close-up. I can see the print-out of the 'gradients per kilometre' stuck to the folding table in front of him. I can see my own contorted expression, looking out, gargoyle-like, over the bike handlebars, forming part of that 'family entertainment'.

'Dad, this is the forest, right?'

I nod and pant.

'It'll soon be ten per cent gradient, Dad.'

I change my gear, and my legs heave a sigh of relief. Six kilometres are behind me, and another fifteen to go, but I must have something in reserve.

The steep road ahead meanders lazily through the trees. Not a kindly flat section in sight, only the mocking gravelly promise of worse to come. Unforgiving gradient for as far as the eye can see and wisps of warm exhaust fumes tickling my nostrils.

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I regain some control over my breathing. It's a simple mind game: there is every chance you will make it to the top. No way are you going to give up. Unthinkable. You'll never be able to look your friends or your boy in the eye again. And certainly not yourself.

For the next 30 seconds I pedal madly, head down but aware of the encouraging shouts coming from ahead. My breath is coming faster again and perspiration drips down my temples. My legs are jellying without doubt. The bike is jolting a bit too.

I recall pulling the dusty old machine out from the shed. 'Dad's bike is a real old boneshaker!' Sonny had quipped. 'You are going to get it checked out, though, aren't you, Dad?' Some oiling and greasing and a new chain later and the bike was fixed. I felt like the king of the road, sailing along the flat terrain outside our home.

The car has halted. Sonny is gesticulating through the back window. 'Dad!' Is that consternation in his voice? 'Dad, are you all right?'

I may acknowledge defeat; I don't know. Maybe just for a few seconds I need to take a rest. Sonny's face drops as he watches me wilt. 'Come on, Dad. You can do it.'

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