# Cambridge International AS & A Level
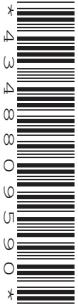
**ENGLISH LANGUAGE** **9093/12**

Paper 1 Reading **May/June 2025**

**2 hours 15 minutes**

You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

**INSTRUCTIONS**
- Answer **all** questions.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.
- Dictionaries are **not** allowed.

**INFORMATION**
- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **8** pages. Any blank pages are indicated.

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**Section A: Directed response**

**Question 1**

Read the following text, which is an extract from a book by an explorer and adventurer.

> **(a)** You work for a travel agency that organises expeditions to remote locations for young adults. Write the text for a section of a leaflet advising travellers of the landscapes that they will encounter in Suriname. Use 150–200 words. [10]
>
> **(b)** Compare the text of your leaflet section with the extract, analysing form, structure and language. [15]

**Forgotten Forest**

*Suriname*

*'Rock!'*

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It would have been an unbeatable(!) expedition, but it would have taken a month we did not have.

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## Section B: Text analysis

**Question 2**

Read the following text, which is an article about how scientists plan to build biocomputers to emulate the human brain.

Analyse the text, focusing on form, structure and language.                               [25]

### Scientists reveal plan to make computers out of brain

*New materials could help scientists borrow the performance of the brain for computing,
they hope.*

Scientists want to create computers out of the same materials that power the human brain.

Computer developers have long looked to emulate the performance of the human brain,          *5*
especially with artificial intelligence. But those techniques have never been able to match
the variety of achievements that humans have made while using their own organic brains.

Scientists now hope that building biocomputers, made out of three-dimensional collections
of brain cells, could help them get closer to that dream. They would work as something like
biological hardware that would allow for the rapid development of new kinds of computers,     *10*
they claim.

Researchers have already trained such a brain-based computer to play the video game
*Pong*[1], and hope to scale it up and replicate it so that it can produce a kind of new capability
that is akin to artificial intelligence.

‘We call this new interdisciplinary field “organoid intelligence” (OI),’ said Thomas Hartung    *15*
of Johns Hopkins University. ‘A community of top scientists has gathered to develop
this technology, which we believe will launch a new era of fast, powerful, and efficient
biocomputing.’

A host of researchers have proposed new work that would look at brain organoids to power
computers. Those are grown in a lab but share important aspects of the function and           *20*
patterns of the brain, including many of the cells that are used for things like learning and
memory.

Researchers hope that would allow such biocomputers to learn much more quickly than
silicon-based computers. The organic computers would also be more efficient, they hope,
as well as able to store far more detail.                                                     *25*

‘Brains also have an amazing capacity to store information, estimated at 2500 terabytes,’
Hartung said.

‘We’re reaching the physical limits of silicon computers because we cannot pack more
transistors into a tiny chip. But the brain is wired completely differently. It has about
100 billion neurons linked through over 1015 connection points. It’s an enormous power         *30*
difference compared to our current technology.’

A host of work is required before the biocomputers could be anything like practical for
actual use. They would need to be much bigger – current brain organoids have about
50 000 cells, but scientists would need 10 million of them for organic intelligence – as well
as being able to communicate by sending and receiving information to understand what          *35*
they are thinking.

9093/12/M/J/25

As well as improving computing, the organic computers could also help tell us more about the brains that inspired them. Researchers could compare how healthy organoids learn with that of people who may have neurological conditions, for instance, as well as testing how substances damage the brain. *40*

Researchers note that producing brains that are able to learn, remember – and perhaps even understand – in the same way that humans do could bring ethical challenges.

'A key part of our vision is to develop OI in an ethical and socially responsible manner,' Hartung said. 'For this reason, we have partnered with ethicists from the very beginning to establish an "embedded ethics" approach. All ethical issues will be continuously assessed *45* by teams made up of scientists, ethicists, and the public, as the research evolves.'

The new work is described in a paper, 'Organoid intelligence (OI): The new frontier in biocomputing and intelligence in-a-dish', published in the journal *Frontiers in Science*.

[1]*Pong*: a video game produced in the 1970s; a simple game by contemporary standards

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