



Year 12 English Standard and Advanced

Paper 1: Area of Study - Discovery

2016 HSC Half Yearly Examination

General Instructions

- Reading time: 10 minutes
- Working time: 80 minutes
- Attempt Sections 1 and 2
- Write using black or blue pen
- Do NOT write in pencil
- Complete all sections in different booklets
- Write your student number on the front of each booklet

Total marks – 45

Section 1 – Reading (5%)

Pages 3-8

15 marks

- Allow about 40 minutes for this section

Section 2 – Writing (5%)

Page 9

15 marks

- Allow about 40 minutes for this section

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Section I

15 marks

Attempt Question 1

Allow about 40 minutes for this section

Answer the question in a SEPARATE writing booklet. Extra writing booklets are available.

In your answers you will be assessed on how well you:

- demonstrate understanding of the way perceptions of discovery are shaped in and through texts
 - describe, explain and analyse the relationship between language, text and context
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Question 1 (15 marks)

Examine **Texts 1, 2, 3 and 4** carefully and then answer the questions on page 8.

Text 1 – Image



Text 2 – Poem

If you ask me what my favourite programme is
It has to be that strange world jigsaw final.
After the winner had defeated all his rivals
With harder and harder jigsaws, he had to prove his mettle
By completing one last absolute mind crusher
On his own, under the cameras, in less than a week.
We saw, but he did not, what the picture would be:
The mid-Atlantic, photographed from a plane.
As featureless a stretch as could be found
No weeds, no flotsam, no birds, no oil, no ships,
The surface neither stormy nor calm, but ordinary,
A light wind on a slowly rolling swell.
Hand-cut by a fiendish jigger to stimulate,
But not to have identical beaks and bays,
It seemed impossible, but the candidate –
He said he was a stateless person, called himself Smith –
Was impressive: small, dark, nimble, self-contained.
The thousands of little grey tortoises were scattered
On the floor of the studio; we saw the clock; he started.
His food was brought to him, but he hardly ate.
He had a bed, with the light only dimmed to a weird blue,
Never out. By the first day he had established
The edges, saw the picture was three metres long
And appeared to represent (dear God!) the sea.
Well, it was a man's life, and the silence
(broken only by sighs, click of wood, plop of coffee
In paper cups) that kept me fascinated.
Even when one hand was picking the edge-pieces
I noticed his other hand was massing sets
Of distinguishing ripples or darker cross-hatchings or
Incipient wave-crests; his mind,
If not his face, worked like a sea.
It was when he suddenly rose from his bed
At two, on the third night, went straight over
To one piece and slotted it into a growing central patch,
Then back to bed, that I knew he would make it.
On the sixth day he looked haggard and slow,
With perhaps a hundred pieces left,
Of the most dreary and unmarked lifeless grey.
The camera showed the clock more frequently.
He roused himself and in a quickening burst

Text 2 continues on page 5

Of activity, with many false starts, began
To press that inhuman insolent remnant together.
He did it, on the evening of the sixth day.
People streamed onto the set. Bands played.
That was fine. But what I liked best
Was the last shot of the completed sea,
Filling the screen, then the saw-lines disappeared.
Till almost imperceptibly the surface moved
And it was again the real Atlantic, glad
To distraction to be released, raised
Above itself in growing gusts, allowed
To roar as rain drove down and darkened,
Allowed to blot, for a moment, the orderer's hand.

EDWIN MORGAN, *Video Box 25*

End of Text 2

Text 3 – Drama script extract

Bohr Because you see what we did in those three years, Heisenberg? Not to exaggerate, but we turned the world inside out! Yes, listen, now it comes, now it comes.... We put man back at the centre of the universe. Throughout history we keep finding ourselves displaced. We keep exiling ourselves to the periphery of things. First we turn ourselves into a mere adjunct of God's unknowable purposes, tiny figures kneeling in the great cathedral of creation. And no sooner have we recovered ourselves in the Renaissance, no sooner has man become, as Protagoras proclaimed him, the measure of all things, than we're pushed aside again by the products of our own reasoning! We're dwarfed again as physicists build the great new cathedrals for us to wonder at - the laws of classical mechanics that predate us from the beginning of eternity, that will survive us to eternity's end, that exist whether we exist or not. Until we come to the beginning of the twentieth century, and we're suddenly forced to rise from our knees again.

Heisenberg It starts with Einstein.

Bohr It starts with Einstein. He shows that measurement – measurement, on which the whole possibility of science depends – measurement is not an impersonal event that occurs with impartial universality. It's a human act, carried out from a specific point of view in time and space, from the one particular viewpoint of a possible observer. Then, here in Copenhagen in those three years in the mid-twenties we discover that there is no precisely determinable objective universe. That the universe exists only as a series of approximations. Only within the limits determined by our relationship with it. Only through the understanding lodged inside the human head.

Margrethe So this man you've put at the centre of the universe – is it you, or is it Heisenberg?

Bohr Now, now, my love.

Margrethe Yes, but it makes a difference. ...If it's Heisenberg at the centre of the universe, then the one bit of the universe that he can't see is Heisenberg. ...So it's no good asking him why he came to Copenhagen in 1941. He doesn't know!

MICHAEL FRAYN, adapted from the play *Copenhagen*

Text 4 – Nonfiction extract

Better than the Lottery

When I was 15 my brother died of a cancer no one had seen before. He was 21 and a midshipman at the US Naval Academy. He was at the peak of health until an unknown cancer exploded inside his body. His doctors at the National Naval Medical Center sent his slides around the world, searching for answers. No one could fix it. No one even really knew what it was. He died in only three weeks. It was May 13th, 1979—Mother’s Day.

This past April, thirty-six years later, I met a young man who unintentionally shook my heart and opened again the mystery of my brother’s death. Our brief encounter has made me think about the profound intersections of our lives and the gifts that can emerge even in tragedy.

I became an actor, then a teacher and now my life has turned an unexpected corner. I work with researchers and doctors on effective ways to speak to the public at the Alan Alda Center for Communicating Science. I was introduced to John Schell, an MD/PhD from the University of Utah, who was one of the winners of the iBiology Young Scientist Seminar, a video contest that features the research of emerging scientists. Winners were chosen based on their research innovations, but their communication for a web broadcast needed attention.

In our work together John began with a pretty dry lecture about a discovery he had made about a mechanism inside a human cell. I knew he had hit upon something significant; he wouldn’t have won the contest otherwise. However, as a theater person, I had no idea what he was talking about. He began with distance and jargon, describing the “transporter for the pyruvate in the cell.” Oy. Very confusing! I asked, “Why does this matter so much? Who was the cell attached to?”

Eventually he acknowledged that the cell was attached to a patient. Good, we’re getting somewhere. I persisted, “Who was the patient? Why do you care?” After a few hours, the world broke open and John dived in and told me the story of “the little girl.” She died before the age of two from a mysterious disease. John had never met her; he didn’t know her name or what had become of her family. But the little girl’s preserved cells helped him and his colleagues break open a mystery that has had cell biologists arguing for 40 years: the precise identity of a molecule that our cells need to get energy from the food we eat.

Text 4 continues on page 7

John described the evening he cracked it. Everyone had gone home. He was alone, poring over the data that had just come back from the lab when he suddenly spotted it – a mutation in a gene that he and his colleagues had suspected was the culprit. This was a critical piece of the evidence – the molecule, as John describes it, “that puts gas in the engine” of our cells. It was too late for the little girl – she had died a decade before – but unlocking the key to this cellular puzzle was a profound moment in John’s life. It could, finally, explain the little girl’s death; maybe in time to save others with the same rare condition.

“For me as an MD/PhD,” he said, “identifying this human disease was the single most salient thing I’ve ever done in my life... If someone offered me the chance to win the lottery or do this experiment, I’d rather do this experiment.”

When he finished telling the story, I delved deeper. “Did you contact the family? Did you let them know? This news could radically change the path of their grief.” He was concerned about sharing the story. Was it too personal? Did he have the right to even talk about the little girl, a child he had known only on the cellular level?

And so I told him my story. Surely since 1979 some researchers have spent time poring over my brother’s slides. Maybe there is a “John” in the world who has uncovered the answer to his disease. Maybe his cells have changed someone else’s life – a researcher, a doctor – maybe another 15-year-old’s big brother. So my urgency for John to find the little girl’s family was powerfully rooted in my own history.

John left us saying he wished he could redo every talk he’d ever given. Bringing his own humanity back into the message had both improved the talk and reminded him of the way he felt about his work.

VALERI LANZT-GEFROH

adapted from scientificamerican.com

End of Text 4

In your answer you will be assessed on how well you:

- demonstrate understanding of the way perceptions of discovery are shaped in and through texts
 - describe, explain and analyse the relationship between language, text and context
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Question 1 (continued)

Text 1 – Image

- (a) In what ways does the image use light to convey meaning? 2

Text 2 – Poem

- (b) Analyse how the poet represents the achievement of the jigsaw champion. 2

Text 3 – Drama script extract

- (c) An important idea in this extract is that discovery has an impact on the way we see ourselves. How is language used to explore this? 3

Text 4 – Nonfiction extract

- (d) How does the author convey the challenges involved in communicating scientific discoveries? 3

Text 1, Text 2, Text 3 and Text 4 – Image, Poem, Drama script extract and Nonfiction extract

- (e) Compare how TWO of the texts explore different responses that individuals have to the experience of discovery. 5

End of Question 1

Section II

15 marks

Attempt Question 2

Allow about 40 minutes for this section

Answer the question in a SEPARATE writing booklet. Extra writing booklets are available.

In your answers you will be assessed on how well you:

- express understanding of discovery in the context of your studies
 - organise, develop and express ideas using language appropriate to audience, purpose and context
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Question 2 (15 marks)

Compose a piece of imaginative writing which explores the role played by careful observation in making a valuable discovery.

Use ONE of the two images below (A or B) as the central element of your writing.

Clearly indicate at the top of your answer which stimulus you have selected.

A



B



End of Question