

English A: language and literature – Higher level – Paper 1
Anglais A : langue et littérature – Niveau supérieur – Épreuve 1
Inglés A: lengua y literatura – Nivel superior – Prueba 1

2 hours 15 minutes / 2 heures 15 minutes / 2 horas 15 minutos

Instructions to candidates

- Do not open this examination paper until instructed to do so.
- Answer both questions.
- The maximum mark for this examination paper is **[40 marks]**.

Instructions destinées aux candidats

- N'ouvrez pas cette épreuve avant d'y être autorisé(e).
- Répondez aux deux questions.
- Le nombre maximum de points pour cette épreuve d'examen est de **[40 points]**.

Instrucciones para los alumnos

- No abra esta prueba hasta que se lo autoricen.
- Responda ambas preguntas.
- La puntuación máxima para esta prueba de examen es **[40 puntos]**.

Write an analysis on each of the texts. It is not compulsory for you to address the guiding questions in your answers.

TEXT A

[20 marks]

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NATURE | EDITORIAL

A question of time

Timekeeping is boosted by the advent of an optical clock based on strontium atoms.

22 January 2014

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When the history of the twenty-first century comes to be written, one of the most puzzling questions asked will be why, well into the information age, millions of people still paid to dial a number on their phone to find out the time. Almost 80 years after its formation, the UK speaking clock, the world’s original telephone time service, remains an essential part of British life. This is despite the near ubiquity of time displays — not least on the mobile phones that people discard to call 123 from a fixed line.

For some people, at some times, accuracy matters. Peaks in the use of the speaking clock come, for instance, on New Year’s Eve, or when the clocks are put forward and back by an hour to mark, respectively, the start and end of British Summer Time.

There is another way, at least in Britain. BBC Radio regularly broadcasts the same time signal used to set the speaking clock — affectionately known as the pips. Indeed, it has become as much a feature of some shows as the content planned around it. Time is more than a British institution; it is woven into the cultural fabric of everyday life.

The pips are drawn from an atomic clock held at the National Physical Laboratory (NPL) in Teddington, near London. One of the most accurate in the world, the NPL clock is tuned to the regular bursts of light emitted by caesium atoms when they are excited by microwaves. The clock would lose roughly one second every 138 million years — a sufficient degree of accuracy for a bleary-eyed hour-late commuter who forgot to set their clock the night before, but not accurate enough for some.

In a paper published on *Nature’s* website this week, time lords in the United States describe the latest

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- [An optical lattice clock with accuracy and stability at the 10–18 level](#)
- [Precise atomic clock may redefine time](#)
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5
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advance in chronometry, and one that is as superior to the atomic pips as those pips were to the mechanical devices they replaced ([B. J. Bloom et al. *Nature* 2014](http://dx.doi.org/10.1038/nature12941)).

The researchers have built a timepiece based not on caesium but on strontium. More importantly, it uses much higher, optical frequencies. This gives such devices, called optical clocks, greater accuracy than those that rely on microwaves. The new optical clock, for example, would not lose one second even if it were to run for 5 billion years.

It is also extremely stable — another key measure of timekeeping. (Accuracy defines how closely a clock's output matches the desired time signal, whereas stability is a measure of how steady that output is. A clock that loses precisely one second each day is inaccurate but stable, for example.)

The unveiling of the super-accurate strontium optical clock comes just a few months after a related group revealed a device based on ytterbium. Other laboratories across the world have their own designs.

Inevitably, the increased precision and reliability of optical clocks are fuelling debate about whether they could be used to set the ultimate time, and redefine the second. (There are no official plans to do so, but plans are afoot to redefine other SI units.) These are heady times for metrology: a [World View on page 455](#)

describes attempts to measure another fundamental constant: Big G.

Nature has a particular stake in the race to develop new atomic clocks. Back in January 2003, we published a News Feature that surveyed the scene and tried to predict what would happen ([D. Adam *Nature* 421, 207–208; 2003](#)). Within a decade, the piece suggested, optical clocks could rise to prominence and raise fresh debate about the definition of the second. A ten-year event horizon is a staple of scientific journalism, and most promised breakthroughs fail to materialize on deadline. The latest development in atomic timekeeping, by contrast, has arrived bang on time. Well, almost.

From the academic journal *Nature* Vol 505
(22 January 2014)

In what ways does the use of language in this article help to interest and entertain the reader?

TEXT B

[20 marks]

UNIQLO
LifeWear

THE UNIQLO SELFLESS SELFIE PROJECT.

I give my #3DSelfie to...
solving homelessness.
#UNIQLOLon

GIVE YOUR SELFIE, IMPACT LIVES & YOU COULD GET A #3DSELFIE

In the spirit of UNIQLO clothing—LifeWear, which aims to support everyday life in a positive way—we’re searching the world for the most innovative people who are positively impacting everyday life. Show us how you’re doing it. It’s simple. Snap, pledge and post a selfless selfie.

Lucky participants become part of our global #3DSelfie Exhibition in **Berlin, New York, Paris, San Francisco** and **London** – in celebration of your pledges to make the world a better place.



Snap.

Snap a selfie. Make it unique, interesting and not just about you. Show us how you’ll do a little good to make everyday life a little better.



Pledge.

Pledge your selfie to doing some everyday good. For whatever or whomever you want. Donate to a favorite cause, visit your grandmother, or be nice to a stranger, every day.



Post.

Post your selfie like this:
I give my #3DSelfie to _____ #UNIQLOCity
Post to your favorite social network.



Get.

Select selfies from around the world will be chosen to become part of our 3D Selfless Selfie Exhibition and will receive a one-of-a-kind #3DSelfie.



Celebrate.

Participants will be invited to attend the opening 3D Selfless Selfie Exhibition in their city.

Advertisements for The Uniqlo Selfless Selfie Project (2014)

Image 1: www.psfk.com

Image 2: meetsobsession.com

How are formal features such as layout, fonts and visuals used to create an effect in these advertisements?