



General Certificate of Education
Advanced Level Examination

Science in Society

SCIS4

Unit 4 Case Study

Specimen paper for examinations in June 2010 onwards

This question paper uses the [new numbering system](#) and [new AQA answer book](#)

In addition to this paper you will require

- Insert 1: a copy of Pre-released source material (Sources A–F)
- Insert 2: Additional source material (Source G)
- an AQA 8-page answer book

You may use a calculator

Time allowed:

- **1 hour 30 minutes**

Instructions

- Answer all questions in Section A and Section B.
- Write your answers in continuous prose.
- Use your own words, rather than simply repeating those used in the sources, to show your understanding of the points being made.

Information

- **Section A:** Questions on your appreciation and understanding of the Case Study Source Material on the subject of *Nanotechnology and Cosmetics* (copy provided earlier) and additional material provided with this paper;
- **Section B:** Questions that ask you to demonstrate your ability to construct an appropriate scientific explanation for a given audience, and seek your argued opinion on an issue raised by the case study material.
- The maximum mark for this paper is 60 (32 for Section A and 28 for Section B).
- Part of the assessment will be based on your ability to use an appropriate form and style of writing, to organise relevant information clearly and coherently, and to use specialist vocabulary, where appropriate.

Section A

- Answer **all** of Questions

0	1
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 to

1	0
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 in the answer book provided.
 - Use Sources **A** to **F**.
 - Where appropriate you may use your own knowledge and ideas to support and enhance your answers to the questions.
 - Total for this Section is 32 marks.
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Question 1

- | | |
|---|---|
| 0 | 1 |
|---|---|

 Identify and explain **four** of the key issues raised in **Sources A and B**
- (8 marks)

Question 2

- | | |
|---|---|
| 0 | 2 |
|---|---|

 Refer to **Source C**. Outline your understanding of the terms 'leading scientific journals'
- | | |
|---|---|
| 0 | 3 |
|---|---|

 'patents'
- | | |
|---|---|
| 0 | 4 |
|---|---|

 'statistically significant number of people'
- | | |
|---|---|
| 0 | 5 |
|---|---|

 'independent clinical study'
- (8 marks)
- | | |
|---|---|
| 0 | 6 |
|---|---|

 Suggest an explanation for the use of these terms in **Source C**
- (4 marks)

Question 3

- | | |
|---|---|
| 0 | 7 |
|---|---|

 Refer to **Sources E and F**. Explain why news of scientific research received by the on-line journal *Nano Letters* in early July 2004 could not appear in a news story for the general public until September 2004.
- (3 marks)
- | | |
|---|---|
| 0 | 8 |
|---|---|

 Use the information given in either **Figure 1** or **Figure 3 (Source F)** to explain the importance of estimating accuracy when presenting scientific data.
- (3 marks)
- | | |
|---|---|
| 0 | 9 |
|---|---|

 Use the two pieces of research reported (**Source E**) as examples to outline briefly the way that scientific knowledge is built up over time.
- (3 marks)
- | | |
|---|---|
| 1 | 0 |
|---|---|

 Outline the purpose of the inclusion of the section titled **In vitro Cytotoxicity** in **Source F**.
- (3 marks)

Section B

- Answer **both** of Questions 4 and 5 in the answer book provided.
 - Use **Sources A – F** together with the additional insert **Source G** to provide examples and evidence for your argument.
 - Write as if you were addressing the intelligent general reader.
 - This section is worth 28 marks.
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Question 4

1	1
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Refer to **Source G**. The box presents a summary by a group of scientists: *Why manufactured free nanoparticles and nanotubes are a cause for concern*
Use information from **Source G** and appropriate information from **Source D** to explain the same issue for a magazine aimed at young students preparing for their GCSE examinations
You should consider the vocabulary and explanation of technical terms required.
You may add sketch pictures or diagrams if you wish.

(12 marks)

Question 5

1	2
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Drawing upon all that you have read in **Sources A – G**

Discuss the action that, in your opinion, the UK government should take as the use of nanoparticles in cosmetics develops.

(16 marks)

END OF QUESTIONS