

Please write clearly in block capitals.

Centre number

--	--	--	--	--

Candidate number

--	--	--	--

Surname

---

Forename(s)

---

Candidate signature

---

# Level 3 Certificate and Extended Certificate in Applied Science

## SCIENCE IN THE MODERN WORLD

Unit Number: ASC3

Monday 26 June 2017

Afternoon

Time allowed: 1 hour 30 minutes

### Materials

For this paper you must have:

- A clean copy of pre-released **Sources A, B, C and D**.
- A calculator.

### Instructions

- Use black ink or black ball-point pen.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

### Information

- You will be provided with copies of pre-released **Sources A, B, C and D**.
- There are two sections in this paper – Section A and Section B.
- You should answer all questions in each section.
- You should spend approximately 1 hour on Section A and 30 minutes on Section B.
- The marks for questions are in brackets.

### Advice

Read each question carefully.

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
<b>TOTAL</b>	



**Section A**

This section is based on **Sources A, B, C and D**

Answer **all** questions in this section

0	1
---	---

**Source A** shows signs and symptoms of a heart attack.

**Source B** describes the signs and symptoms which many people assume happen during a heart attack.

Describe the signs and symptoms of heart attacks given in **Sources A and B**.

**[4 marks]**

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

0	2	.	1
---	---	---	---

Give **one** reason why it is important that people act quickly during a heart attack in order to prevent premature death.

Use information from **Source B** in your answer.

**[1 mark]**

---

---

---



0 2 . 2

Suggest **three** reasons why **Source B** includes a case study about someone who had suffered a heart attack.

**[3 marks]**

1 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

0 2 . 3

In **Source B**, Dr Gale refers to the importance of all healthcare professionals recognising the symptoms of heart attacks.

Explain why it is important that nurses and paramedics recognise the symptoms of heart attacks in both women and men.

**[2 marks]**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Turn over ►**

0 3

**Source C** summarises a **nine-year study** into heart attacks.

0 3 . 1

Use the results from **page 7 Source C** to calculate the average number of women treated for heart attacks each year.

**[3 marks]**

---

---

---

---

---

---

---

---

---

---

0 3 . 2

**Source B** is a newspaper article. **Source B** is based on the research paper **Source C**.

Give **three** differences between newspaper articles and research papers.

**[3 marks]**

Difference 1 \_\_\_\_\_

---

Difference 2 \_\_\_\_\_

---

Difference 3 \_\_\_\_\_

---



0 4

The research described in **Source C** is an example of a cohort study. A cohort study follows a group of people over a period of time and measures their health outcomes, such as heart disease.

Suggest why a cohort study is used to study illnesses like heart disease.

[2 marks]

---

---

---

---

---

---

---

0 5

In the section ‘Study variables’ in **Source C (page 7)**, the researchers list the factors that they considered when analysing their data.

0 5 . 1

Explain why it was important for the researchers to take factors like these into account when studying heart disease.

[2 marks]

---

---

---

---

---

---

---

0 5 . 2

Identify **one** factor included in the study variables and explain its importance

[2 marks]

---

---

---

---

---

---

---

Turn over ►



0 6

One risk factor for heart disease is smoking. What percentage of participants in **Source C** were smokers (prior or current).

**[1 mark]**

---

---

0 7

**Source A** was published by the British Heart Foundation (BHF). The BHF funds cardiovascular research and also provide advice to people about heart disease. The BHF does **not** accept funding from, or work in partnership with, tobacco companies or medical device companies.

Suggest why the BHF does **not** accept funding from tobacco companies.

**[2 marks]**

---

---

---

---

---

0 8

Give **one** example of a medical device that might be used to treat cardiovascular disease.

**[1 mark]**

---

---



0 9

**Source C** was published in the peer-reviewed journal *European Heart Journal: Acute Cardiovascular Care*.

Describe the process of peer review.

**[4 marks]**

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

1 0

**Source D** was written in response to **Source C**.

Give **two** examples used by the author of **Source D** to show that **Source C** is 'out of date'.

**[2 marks]**

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

Turn over ►







---

---

---

---

41

**Turn over for Section B**

**Turn over ▶**



**Section B**

Answer **all** questions in this section

**1 2**

**Table 1** shows the amount of funding spent in 2008 and 2012 on medical research into three different types of disease. The amount of funding spent by charities and government is given in thousands of pounds.

**Table 1**

	Research funding 2008 (× £1000)			Research funding 2012 (× £1000)		
	Charity	Government	Total	Charity	Government	Total
Cancer	323 771	266 640	590 411	387 414	156 640	544 055
Heart disease	85 031	84 229	169 260	91 486	74 699	166 185
Dementia	13 913	36 331	50 244	16 637	73 481	90 118

**1 2 . 1**

Describe the changes in funding between 2008 and 2012 for heart disease research.

**[2 marks]**

---



---



---



---



---



---

**1 2 . 2**

Suggest why government funding for dementia almost doubled between 2008 and 2012.

**[1 mark]**

---



---



---



1	2	.	3
---	---	---	---

There were 2 254 000 cases of cancer in 2012. Calculate the amount of charity research funding spent for each case of cancer in 2012.

**[2 marks]**

---

---

---

---

1	2	.	4
---	---	---	---

Charity research funding may come from donations made by the public.

Suggest how newspaper reporting of diseases might affect the amount of money donated to different disease charities.

**[3 marks]**

---

---

---

---

---

---

---

---

---

---

**Question 12 continues on the next page**

**Turn over ►**





1	3
---	---

Research scientists and laboratory technicians are actively involved in medical research.

As part of their role, research laboratory technicians carry out **qualitative** and **quantitative** analysis.

What is meant by these two terms?

Qualitative

**[2 marks]**

---

---

---

---

Quantitative

---

---

---

---

**Turn over for the next question**

**Turn over ►**



1	4
---	---

Many science personnel are involved in the development and testing of new drugs. Suggest **one** role that each of these people might play in the development and testing of new drugs

**[3 marks]**

Pharmacologist

---

---

---

Animal technician

---

---

---

Chemist

---

---

---

<b>19</b>

**END OF QUESTIONS**



**There are no questions printed on this page**

**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**



**There are no questions printed on this page**

**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**

**Copyright information**

For confidentiality purposes, from the November 2015 examination series, acknowledgements of third party copyright material will be published in a separate booklet rather than including them on the examination paper or support materials. This booklet is published after each examination series and is available for free download from [www.aqa.org.uk](http://www.aqa.org.uk) after the live examination series.

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team, AQA, Stag Hill House, Guildford, GU2 7XJ.

Copyright © 2017 AQA and its licensors. All rights reserved.

