

Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

For Examiner's Use
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General Certificate of Secondary Education  
January 2009



**SCIENCE B**  
**Unit Biology B1**

**BLY1H**  
**H**

**BIOLOGY**  
**Unit Biology B1**

**Higher Tier**

Monday 12 January 2009 9.00 am to 9.45 am

<p><b>For this paper you must have:</b></p> <ul style="list-style-type: none"> <li>a ruler.</li> </ul> <p>You may use a calculator.</p>
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Time allowed: 45 minutes

**Instructions**

- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Answers written in margins or on blank pages will not be marked.
- Do all rough work in this book. Cross through any work you do not want to be marked.

**Information**

- The maximum mark for this paper is 45.
- The marks for questions are shown in brackets.
- You are expected to use a calculator where appropriate.
- You are reminded of the need for good English and clear presentation in your answers.

**Advice**

- In all calculations, show clearly how you work out your answer.

For Examiner's Use			
Question	Mark	Question	Mark
1		5	
2		6	
3			
4			
Total (Column 1)		→	
Total (Column 2)		→	
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Examiner's Initials			



J A N O 9 B L Y 1 H O 1

Answer **all** questions in the spaces provided.

1 The table gives information about the nutrients in a large cup of different hot drinks.

Drink	Kilojoules	Total fat in g	Saturated fat in g	Sodium equivalent in mg	Total carbohydrate in g	Sugars in g	Protein in g
Brewed coffee	28	0	0	0	1	0	0.3
White chocolate mocha with whole milk	1698	19.9	13.3	208	44	43	11.5
Cappuccino with skimmed milk	316	0	0	101	11	9	7.4
Café latte with whole milk	838	10.6	6.6	156	16	15	10.8
Café latte with skimmed milk	511	0	0	169	18	16	12.0
Americano	48	0	0	0	2	0	0.7

Use the information in the table to answer these questions.

1 (a) Which drink gives least energy?

.....  
 .....  
 (1 mark)

1 (b) What is the main difference between a café latte made with skimmed milk and a café latte made with whole milk?

.....  
 .....  
 (1 mark)



1 (c) (i) Which is the most unhealthy drink?

.....  
.....

(1 mark)

1 (c) (ii) Give **two** reasons for your answer.

1.....  
.....  
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2.....  
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(2 marks)

<b>5</b>

**Turn over for the next question**

**Turn over ▶**



2 The MMR vaccine is used to protect children against measles, mumps and rubella.

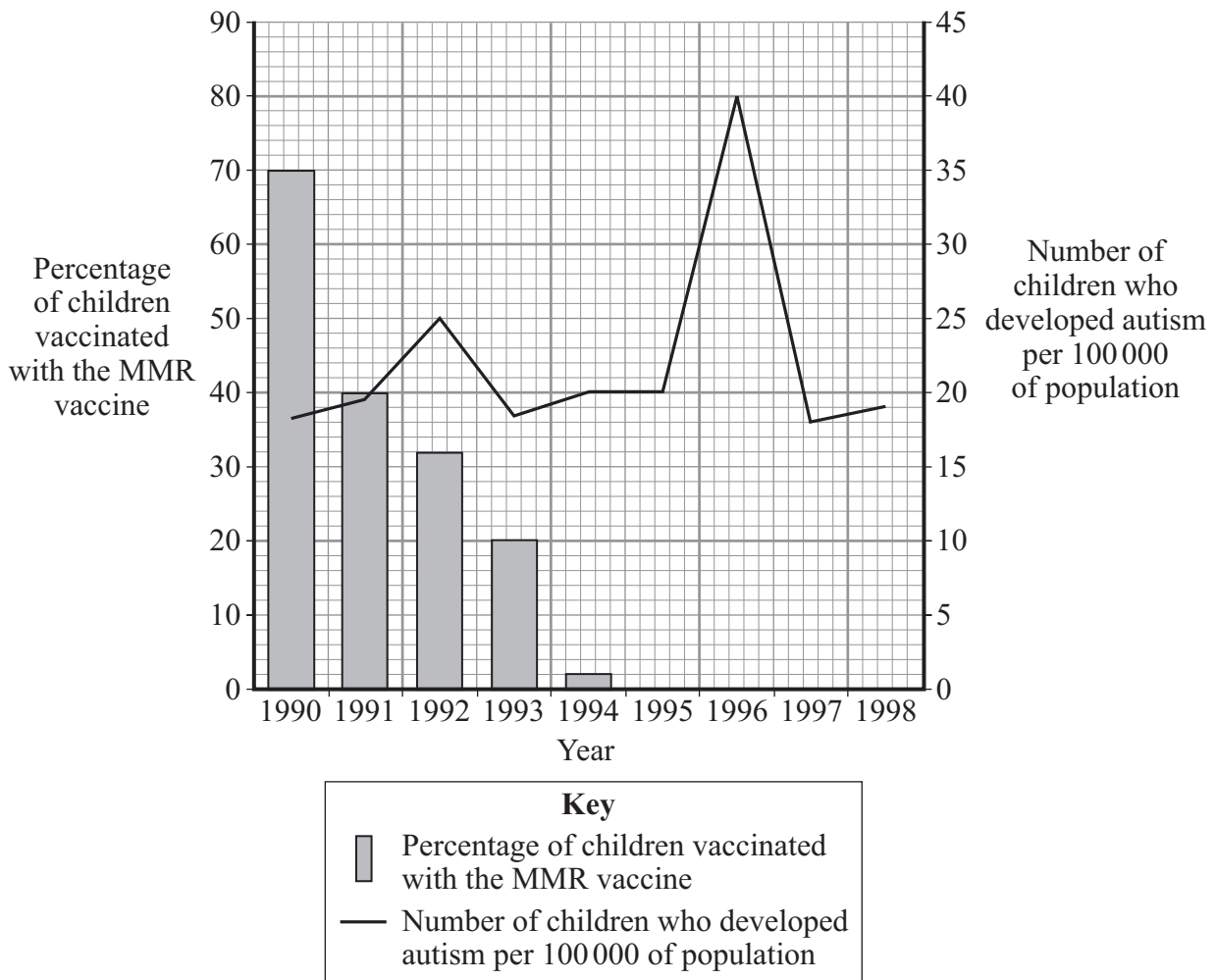
2 (a) Complete the sentences about vaccination.

Vaccines stimulate white blood cells to produce .....

This makes children ..... to the pathogen.  
(2 marks)

2 (b) In the 1990s, many people thought that the MMR vaccine caused autism in some children. As a result, the Japanese government stopped using the MMR vaccine.

The graph gives information about the percentage of children in Japan vaccinated with the MMR vaccine and the number of children who developed autism during the 1990s.



2 (b) (i) Describe how the percentage of children vaccinated with the MMR vaccine changed between 1990 and 1995.

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(2 marks)

2 (b) (ii) Does the data in the graph support a link between MMR vaccination and autism?

Draw a ring around your answer.      **Yes / No**

Explain the reason for your answer.

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(2 marks)

<b>6</b>

**Turn over for the next question**

**Turn over ►**



- 3 Nicotine is the addictive substance in tobacco.  
People can be helped to stop smoking by giving them nicotine replacement therapy (NRT).

The table gives the results of trials of different types of NRT.

Type of NRT	Smokers given NRT		Smokers given placebo	
	Number of smokers in trial	Percentage of smokers who gave up smoking	Number of smokers in trial	Percentage of smokers who gave up smoking
<b>Gum</b>	7387	20	9319	12
<b>Patch</b>	7708	14	5969	8
<b>Nasal spray</b>	448	24	439	12
<b>Inhaler</b>	490	14	486	8
<b>Tablet</b>	243	20	245	13

- 3 (a) (i) What is a placebo?

.....  
 .....  
 (1 mark)

- 3 (a) (ii) Why was a placebo used in these NRT trials?

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 .....  
 (1 mark)

- 3 (b) (i) In which trial was the data most reliable?

.....  
 (1 mark)

- 3 (b) (ii) Give the reason for your answer.

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 .....  
 (1 mark)



3 (c) (i) Which type of NRT was most effective?

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(1 mark)

3 (c) (ii) Explain the reasons for your answer.

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(2 marks)

7

**Turn over for the next question**

**Turn over ►**



4 Reflex actions are rapid and automatic.

4 (a) Name the following structures in a reflex action.

4 (a) (i) The structure that detects the stimulus.

.....  
(1 mark)

4 (a) (ii) The neurone that carries impulses to the central nervous system.

.....  
(1 mark)

4 (a) (iii) The neurone that carries impulses away from the central nervous system.

.....  
(1 mark)

4 (a) (iv) The structure that brings about the response.

.....  
(1 mark)

4 (b) Describe what happens at a synapse when an impulse arrives.

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.....  
(2 marks)





4 (c) Some people have a condition in which information from the skin does not reach the brain.

Explain why this is dangerous for the person.

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(2 marks)

8

**Turn over for the next question**

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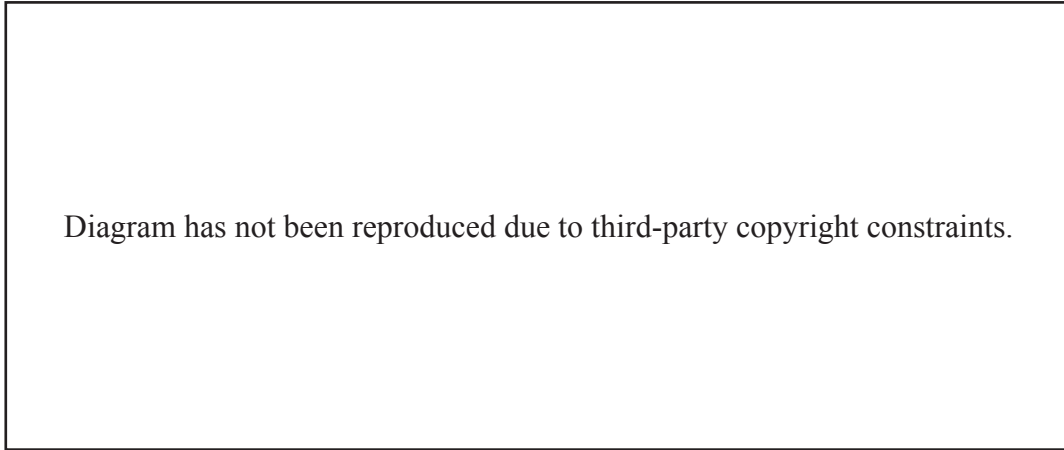




- 5 (c) Most penguins live in cold climates. The modern penguin best adapted for cold conditions is the emperor penguin.

Scientists have found fossils of a ‘giant’ penguin which they have called *Icadyptes*.

The diagram shows how the size of modern penguins compares with *Icadyptes*.



The scientists were surprised to discover that *Icadyptes* lived in warm seas at a time when the Earth’s climate was much warmer than it is now.

Explain why the scientists were surprised that *Icadyptes* lived in warm seas.

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(2 marks)

10
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Turn over ►



6 The use of cloned animals in food production is controversial.

It is now possible to clone 'champion' cows.  
Champion cows produce large quantities of milk.

6 (a) Describe how adult cell cloning could be used to produce a clone of a 'champion' cow.

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(4 marks)



6 (b) Read the passage about cloning cattle.

The Government has been accused of ‘inexcusable behaviour’ because a calf of a cloned American ‘champion’ cow has been born on a British farm. Campaigners say it will undermine trust in British food because the cloned cow’s milk could enter the human food chain.

But supporters of cloning say that milk from clones and their offspring is as safe as the milk we drink every day.

Those in favour of cloning say that an animal clone is a genetic copy. It is not the same as a genetically engineered animal. Opponents of cloning say that consumers will be uneasy about drinking milk from cloned animals.

Use the information in the passage and your own knowledge and understanding to evaluate whether the government should allow the production of milk from cloned ‘champion’ cows.

Remember to give a conclusion to your evaluation.

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(5 marks)

9

**END OF QUESTIONS**



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