Surname		Other Names	
Centre Number			Candidate Number				
Candidate Signature									

For Examiner's Use

General Certificate of Secondary Education
January 2009

SCIENCE B **BLY1F**
Unit Biology B1

F

BIOLOGY
Unit Biology B1

Foundation Tier

Monday 12 January 2009 9.00 am to 9.45 am

For this paper you must have:
- a ruler.

You may use a calculator.

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		7	
2		8	
3			
4			
5			
6			
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			

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

1 The photograph shows a child waiting to cross a road.

1 (a) Name **two** different sense organs she would use to detect when it is safe to cross the road.

1 .....

2 .....

(2 marks)

1 (b) Which sense organ contains receptors that help the child to keep her balance?

.....

(1 mark)

1 (c) (i) Complete the sentence.

A car driver automatically brakes if a child dashes out into the road.

This is called a ..... action.

(1 mark)

1 (c) (ii) Draw a ring around the correct answer to complete the sentence.

In the nervous system, information passes along cells called

effectors
neurones
synapses

.

(1 mark)

5

2 The photograph shows an area where a tropical forest is being cleared.

2 (a) Complete the sentences.

People could use timber from the forest for ..... .

The cleared land can be used for ..... .

Clearing forests increases the concentration of ..... in the atmosphere.

This increase causes global ..... .

(4 marks)

2 (b) Clearing forests causes some species to become *extinct*.

2 (b) (i) What is meant by *extinct*?

.....

.....

(1 mark)

2 (b) (ii) It is important to prevent species from becoming extinct.

Give **one** reason why.

.....

.....

(1 mark)

6

3 Many substances affect our bodies.

List **A** gives the names of four substances which affect the body.

List **B** gives information about these substances.

Draw a line from each substance in List **A** to the correct information about it in List **B**.

List A – Substance	**List B – Information**
Salt	‘Good’ cholesterol
Carbon monoxide	Increases blood cholesterol levels
HDL (High density lipoprotein)	Causes irregular periods in women
Saturated fat	Reduces the amount of oxygen carried by the blood
	Leads to high blood pressure in 30% of the population

(4 marks)

4

4 Animals have adaptations that enable them to survive.

4 (a) The photograph shows an echidna.

The echidna has pointed spines on its back.

Explain how these spines might help the echidna to survive.

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(2 marks)

Question 4 continues on the next page

4 (b) The photograph shows a caterpillar.

Explain how the caterpillar's appearance might help it to survive.

.....

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.....

.....

(2 marks)

4 (c) Draw a ring around the correct answer to complete each sentence.

4 (c) (i) Evolution can be explained by a theory called

genetic engineering

mutation

natural selection

.

(1 mark)

4 (c) (ii) This theory was suggested by a scientist called Charles

Darwin

Lamarck

Semmelweiss

.

(1 mark)

4 (c) (iii) This scientist said that all living things have evolved from

monkeys

dinosaurs

simple life forms

.

(1 mark)

4 (d) Many religious people oppose the theory of evolution.

Give **one** reason why.

.....

.....

(1 mark)

8

Turn over for the next question

5 The photographs show a zorse and its parents, a zebra and a horse.

Horse

×

Zebra

Zorse

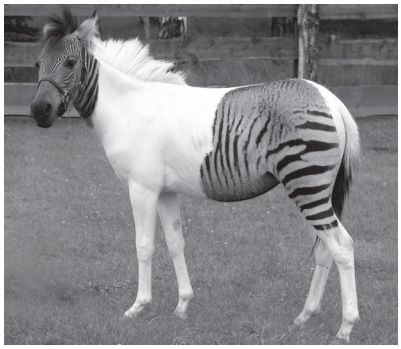

Photo of horse © Arctic-Images/Corbis
Photo of zebra © Arthur Morris/Corbis
Photo of zorse © Udo Richter/epa/Corbis

5 (a) Draw a ring around the correct answer to complete the sentence.

The zorse was produced by

cloning
asexual reproduction
sexual reproduction

.

(1 mark)

5 (b) Explain the appearance of the zorse.

Use **both** words from the box in your explanation.

gametes	**genes**

.....

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(3 marks)

4

Turn over for the next question

6 In-vitro fertilisation (IVF) is used to help infertile women to have babies.

The table gives statistics from one clinic that gives IVF treatment.

	Age of women given IVF treatment			
	Under 35 years	35 – 37 years	38 – 39 years	40 – 42 years
Number of women treated	425	208	106	53
Number of single births	90	44	17	1
Number of sets of twins	24	8	4	1
Number of sets of triplets	1	0	0	0

Use data from the table to help you to answer these questions.

6 (a) How many of the women aged 38 – 39 had babies?

.....

.....

(1 mark)

6 (b) What proportion of the treated women aged 35 – 37 had twins?

.....

.....

(1 mark)

6 (c) For which age group was IVF treatment most successful?

.....

.....

(1 mark)

6 (d) Give **two** disadvantages of IVF treatment.

1.....

.....

.....

2.....

.....

.....

(2 marks)

5

Turn over for the next question

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

7 (a) Complete the sentences about vaccination.

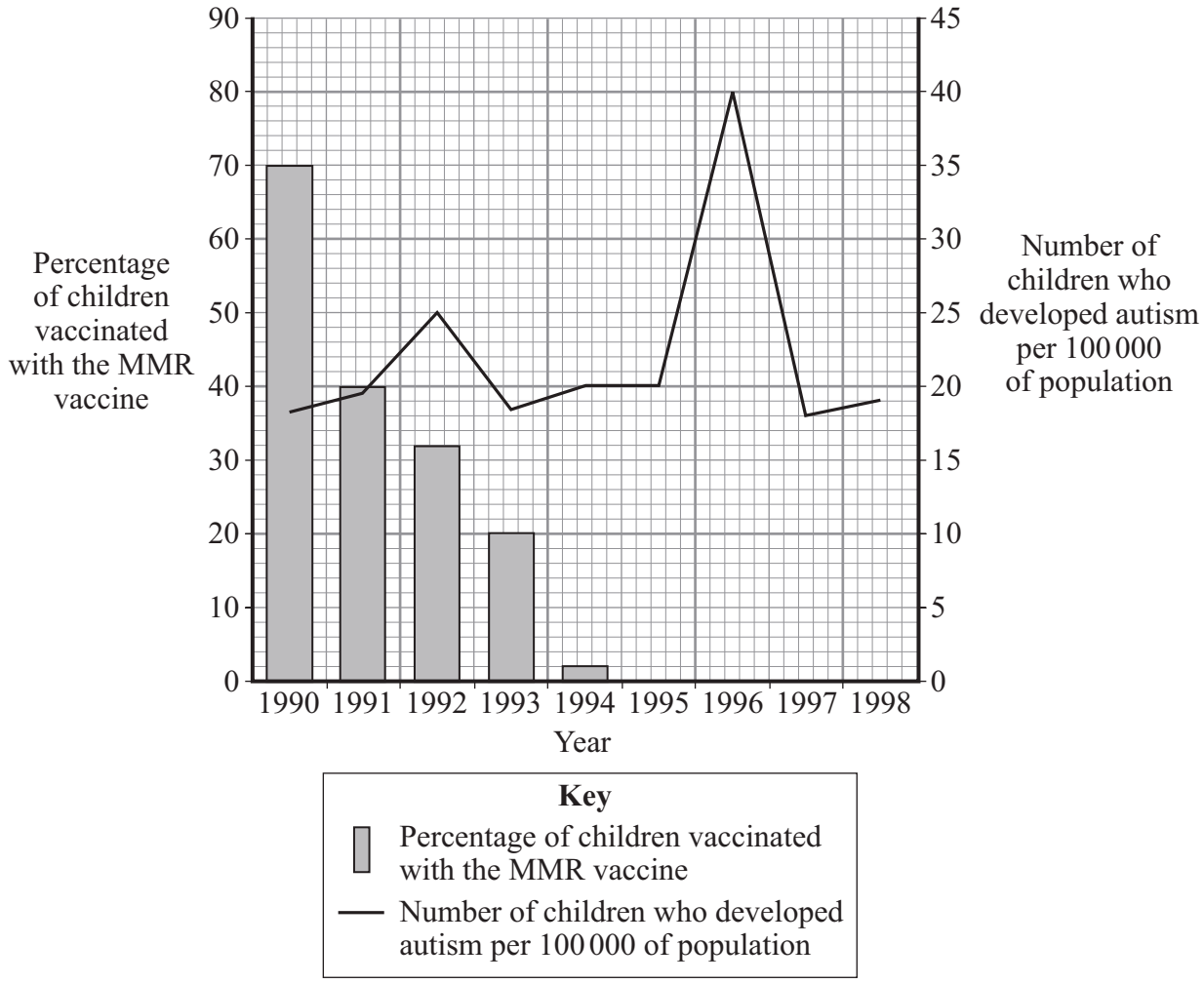
Vaccines stimulate white blood cells to produce ..... .

This makes children ..... to the pathogen.

(2 marks)

7 (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.



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

.....

.....

.....

.....

.....

(2 marks)

7 (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.

.....

.....

.....

.....

.....

(2 marks)

6

Turn over for the next question

8 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
Gum	7387	20	9319	12
Patch	7708	14	5969	8
Nasal spray	448	24	439	12
Inhaler	490	14	486	8
Tablet	243	20	245	13

8 (a) (i) What is a placebo?

.....

.....

(1 mark)

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

.....

.....

(1 mark)

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

.....

(1 mark)

8 (b) (ii) Give the reason for your answer.

.....

.....

.....

(1 mark)

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

.....

(1 mark)

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

.....

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.....

.....

(2 marks)

7

END OF QUESTIONS

There are no questions printed on this page

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