Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

For Examiner's Use

General Certificate of Secondary Education
June 2007

SCIENCE B **BLY1F**
Unit Biology B1

F

BIOLOGY
Unit Biology B1

Foundation Tier

Wednesday 20 June 2007 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 blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- 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 Animals and plants are adapted in different ways in order to survive.

(a) Plants may have to compete with other plants.

(i) Name **two** things for which plants compete.

1 .....

2 .....

(2 marks)

(ii) The drawing shows a creosote bush.

This bush lives in a desert.

The creosote bush produces a poison that kills the roots of other plants.

How does this poison help the creosote bush to survive in the desert?

.....

.....

(1 mark)

(b) The photograph shows an insect called a katydid.

The katydid is preyed on by birds.

How does the appearance of the katydid help it to survive?

.....

.....

.....

.....

(1 mark)

4

Turn over for the next question

2 (a) We control many conditions inside our bodies.

Name **three** conditions which are controlled inside our bodies.

1 .....

2 .....

3 .....

(3 marks)

(b) Hormones are used to control fertility in women.

Use words from the box to complete the sentences.

antibiotic	**contraceptive drug**	**fertility drug**	**vaccine**

A woman can prevent pregnancy by taking a ..... .

A woman can be helped to become pregnant by taking a ..... .

(2 marks)

(c) Some drugs are addictive.

(i) Name **one** addictive drug.

.....

(1 mark)

(ii) Explain why it is very difficult to give up using an addictive drug.

.....

.....

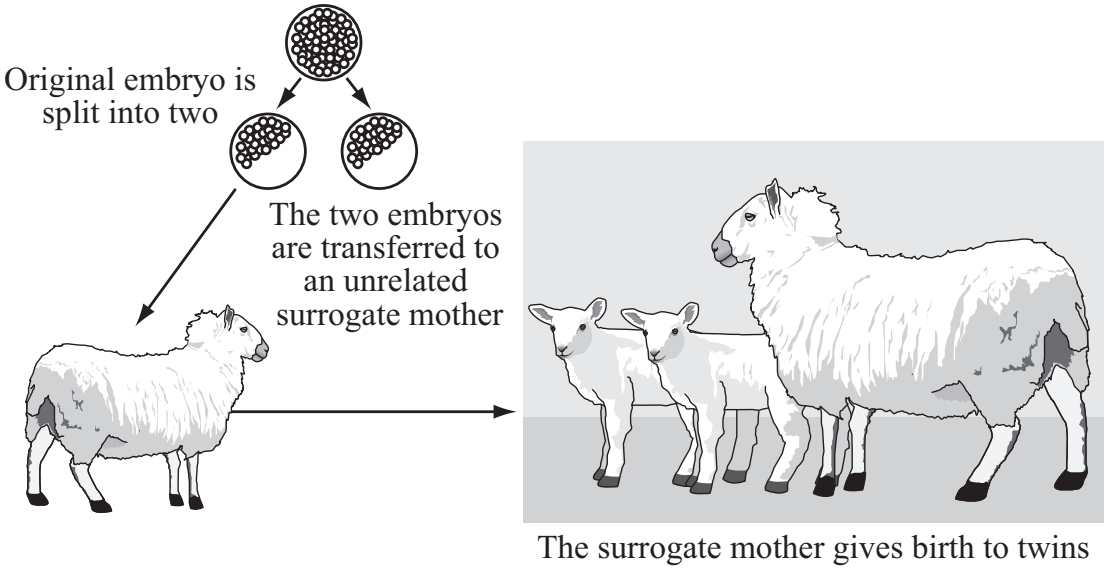
.....

.....

(2 marks)

8

3 The diagram shows one way of cloning sheep.



Use words from the box to complete the sentences.

asexual	**clones**	**different**	**gametes**
identical	**joining**	**sexual**	**splitting**

The original embryo in the diagram developed following the ..... of an egg and a sperm. This is called ..... reproduction. The twins in the diagram have ..... genetic information. This is because the two embryos were produced by ..... reproduction. Because of this they are known as ..... . *(5 marks)*

5

4 The table below is from a packet of 'healthy' crisps.

TYPICAL NUTRITIONAL VALUES		
	Per 25 g pack	Per 100 g
Energy	550 kJ	2200 kJ
Protein	1.6 g	6.5 g
Carbohydrate of which sugars	12.3 g 0.1 g	49.0 g 0.5 g
Fat of which saturates monounsaturates polyunsaturates	8.5 g 0.7 g 6.8 g 1.0 g	34.0 g 2.8 g 27.2 g 4.0 g
Fibre	1.0 g	4.0 g
Sodium*	0.2 g	0.8 g
*Equivalent as salt	0.4 g	1.5 g

GUIDELINE DAILY AMOUNTS			
Each day	Men	Women	Children
Energy	10 500 kJ	8250 kJ	7500 kJ

(a) How much unsaturated fat is there in a 25 g packet of crisps?

..... g
(1 mark)

(b) How many 25 g bags of crisps would a child need to eat to get the guideline daily amount of energy (for a child)?

.....

.....

Number of bags .....
(2 marks)

(c) The manufacturer claims that these crisps are healthier because they contain 70 % less saturated fat.

Explain why too much saturated fat is bad for us.

.....

.....

.....

.....

(2 marks)

(d) The manufacturer has also reduced the amount of salt in these crisps.

Why is too much salt bad for us?

.....

.....

(1 mark)

6

Turn over for the next question

5 Read the article from a recent newspaper.

'King Kong' with inch-wide teeth who walked alongside early man.

Photograph of 'King Kong' is not reproduced here due to third-party copyright restrictions

The largest ape that walked on Earth was a prehistoric animal that weighed up to 540 kg. It was 3 metres tall and had inch-wide teeth. This giant ape roamed bamboo forests until 100 000 years ago. It is quite likely that the giant ape lived at the same time as early humans.

(a) What evidence might scientists have that the great ape existed?

.....

.....

(1 mark)

(b) The drawing is an artist's impression of what the giant ape might have looked like.

Why do scientists not know exactly what the animal looked like?

.....

.....

(1 mark)

(c) Scientists do not know why this giant ape became extinct.

Suggest **two** reasons why this giant ape became extinct.

1 .....

.....

2 .....

.....

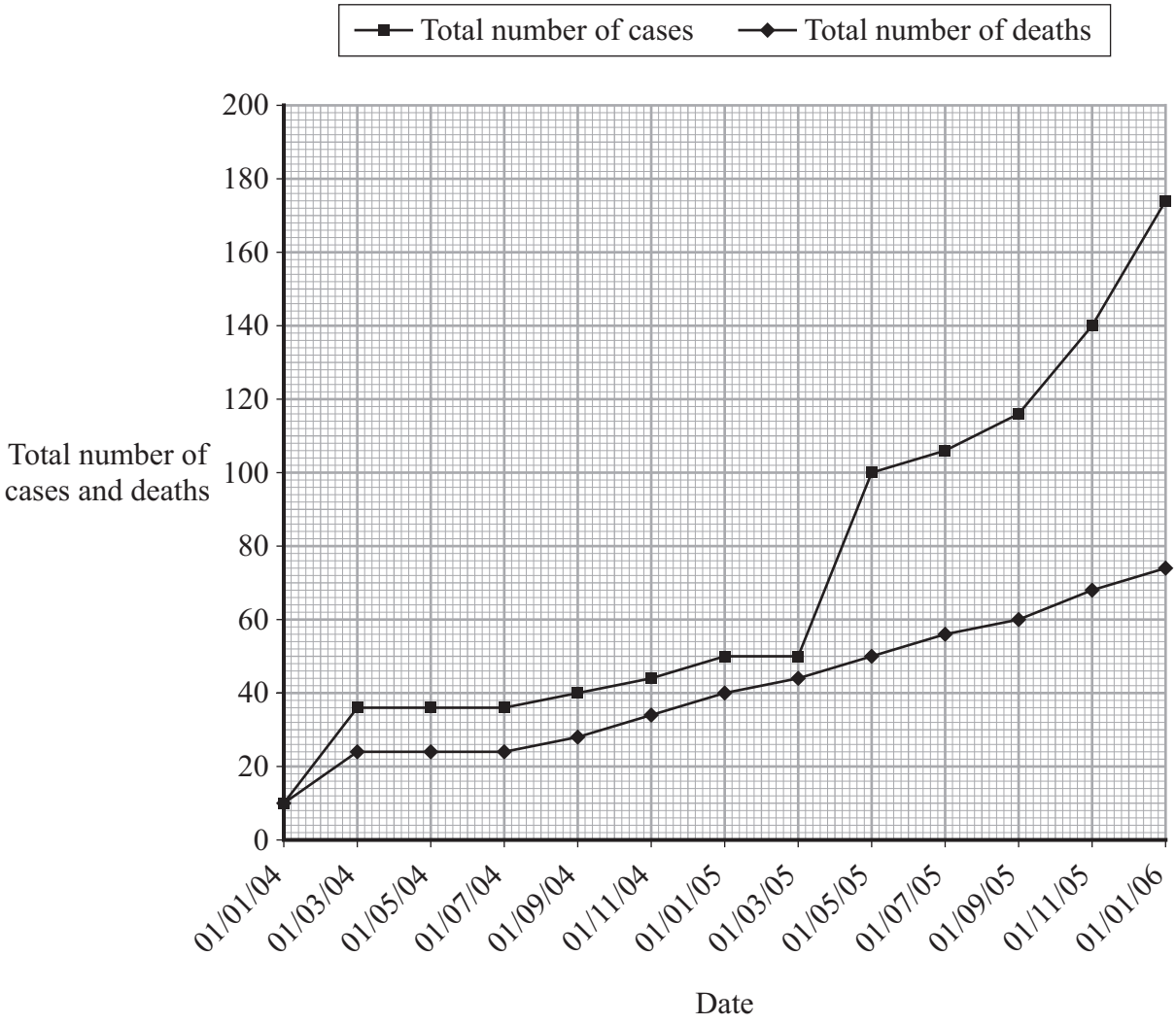
(2 marks)

4

Turn over for the next question

6 Scientists began to keep records of cases of H5N1 bird flu in humans in January 2004.

The graph shows the total number of cases of bird flu in humans and the total number of deaths up to January 2006.



(a) (i) How many people had died from bird flu up to 01/07/05?

.....

(1 mark)

(ii) Describe, as fully as you can, how the number of cases of bird flu in humans changed between 01/07/04 and 01/01/06.

.....

.....

.....

.....

(2 marks)

(b) At present, humans can only catch bird flu from contact with infected birds. The bird flu virus may mutate into a form that can be passed from one human to another.

Explain why millions of people may die if the bird flu virus mutates in this way.

.....

.....

.....

.....

(2 marks)

5

Turn over for the next question

7 Read the article about sustainable cod fishing.

> Every December the European Commission makes proposals for cod fishing quotas in European Union (EU) waters. These quotas take into account data obtained by scientists.
>
> Scientists calculate what proportion of the cod stock is being caught each year. They do this by working out the numbers in each age-group of cod.
>
> Every year the fishermen say the scientists are exaggerating the danger to the stocks in the North Sea. The scientists say the fishermen are threatening their own long-term livelihoods by ignoring their warnings of a collapse of cod populations.
>
> The scientists say that fishermen go only to parts of the sea where there are a lot of cod, so they get the wrong idea of the number of cod in the whole area.

(a) The scientists and the fishermen have different opinions about the size of the cod population.

Explain why.

.....

.....

.....

.....

(2 marks)

(b) The final decision on how many cod the fishermen are allowed to catch may not depend entirely on the data produced by the scientists.

Suggest **two** reasons for this.

1 .....

.....

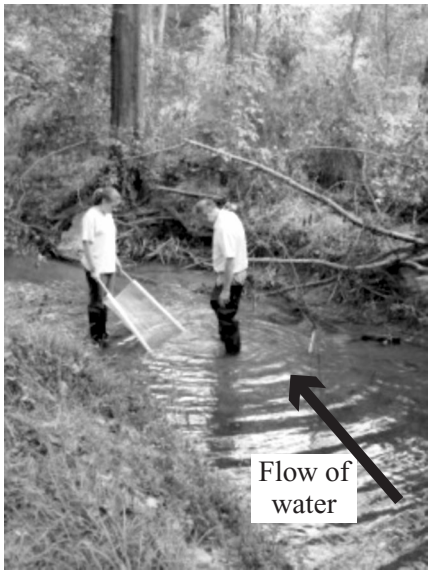
2 .....

.....

(2 marks)

4

8 Invertebrate animals are used to monitor pollution in streams. The photograph shows scientists collecting a sample of invertebrates from a stream.



This is the method that they use.

- A 1 m^2 area of the bed of the stream is marked out.
- A net 1 m wide is held by one person on the downstream side of the marked-out area.
- The other person uses their boots to gently move stones in this area of the stream bed. They do this for three minutes. This dislodges invertebrates which are then caught in the net.
- The invertebrates are then identified and counted.

(a) Name **two** control variables (variables which must be kept the same) in this investigation.

1 .....

2 .....

(2 marks)

Question 8 continues on the next page

(b) Suggest **two** reasons why the results from a sample might not be accurate.

1 .....

.....

2 .....

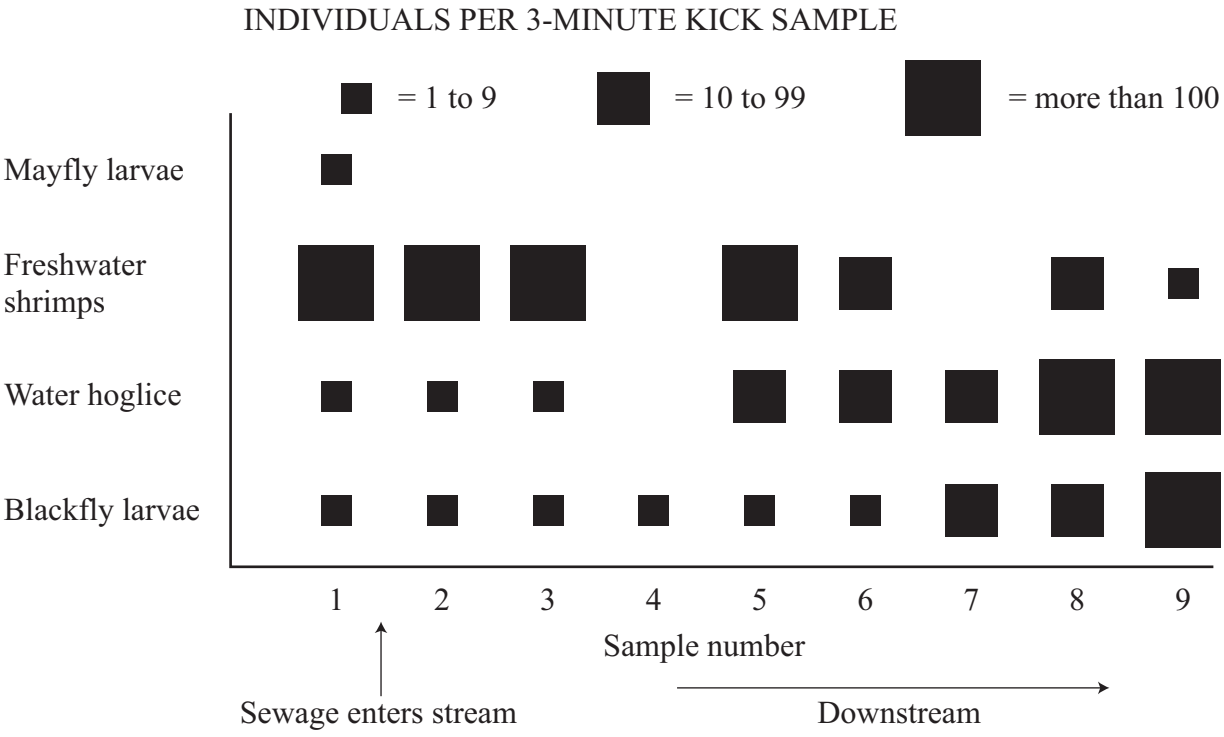
.....

(2 marks)

The technique described on the previous page was used to investigate the effect of sewage on stream invertebrates.

- Sample 1 was taken upstream of the point where the sewage entered the stream.
- Samples 2–9 were taken at regular intervals downstream of the sewage inflow.

The graph shows the results.



(c) What was the range of the number of blackfly larvae that could be found in sample 7?

.....

(1 mark)

(d) Describe, as fully as you can, how the number of water hoglice changed downstream from where sewage entered the stream.

.....

.....

.....

.....

(2 marks)

(e) Which of the four invertebrates is the best indicator species for water which is **not** polluted by sewage?

.....

Give the reason for your answer.

.....

.....

(2 marks)

9

END OF QUESTIONS

There are no questions printed on this page

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Question 1 Photo of katydid, *www.clc.uc.edu*, 23.5.06

Question 5 R F ZALLINGER, *Gigantopithecus*, 12.10.06

Question 8 Photo of kick-sampling, *www.columbiacountyga.gov*, 22.5.06