

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
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5	
6	
7	
8	
9	
TOTAL	



General Certificate of Secondary Education
Foundation Tier
June 2010

Science B
Unit Biology B1

BLY1F

F

Biology
Unit Biology B1

Written Paper

Wednesday 9 June 2010 1.30 pm to 2.15 pm

You will need no other materials.
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. 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

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 45.
- 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

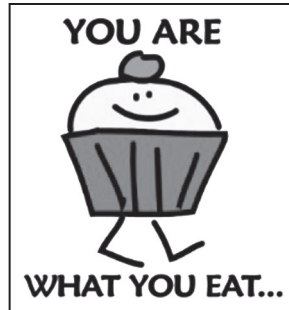
- In all calculations, show clearly how you work out your answer.



J U N 1 0 B L Y 1 F 0 1

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

1 A healthy body needs a healthy diet.



Draw a ring around the correct answer to complete each sentence.

1 (a) To build cells we need large amounts of

mineral ions.
proteins.
vitamins.

(1 mark)

1 (b) Too much fat in the diet can lead to

heart disease.
leprosy.
lung cancer.

(1 mark)

1 (c) Too much salt in the diet can lead to

arthritis.
diabetes.
high blood pressure.

(1 mark)

1 (d) Not eating enough food can lead to

diabetes.
irregular periods.
leprosy.

(1 mark)

4



2 The photograph shows an aardvark.



- Aardvarks feed on insects that they dig from the soil.
- Aardvarks hunt for these insects at night.

How does each of these adaptations help the aardvark?

2 (a) It has powerful claws.

.....

.....

(1 mark)

2 (b) It has a long, sticky tongue.

.....

.....

(1 mark)

2 (c) It has very large ears.

.....

.....

(1 mark)

2 (d) It can cover the end of its nose with flaps of skin.

.....

.....

(1 mark)

4

Turn over ►



There are no questions printed on this page

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



3 A company makes a fruit-flavoured herbal drink called *Liquid Smoking*.

The photograph of a
can of
Liquid Smoking drink
is not reproduced
here due to
third-party copyright
constraints.

The company claims that the drink:

- will deliver the same *fix* as cigarettes
- does not contain nicotine
- is not harmful in any way.

3 (a) The *Liquid Smoking* container does not have a warning on it.

Give **two** reasons why cigarette smoking is dangerous.

1

.....

2

.....

(2 marks)

3 (b) Why do cigarette smokers need a *fix*?

.....

.....

(1 mark)

3

Turn over ►



4 We breed animals with the characteristics that we prefer.

4 (a) The photograph shows a rabbit with some of its babies.



Use words from the box to complete the sentences about inheritance in rabbits.

characteristic

chromosome

gene

gamete

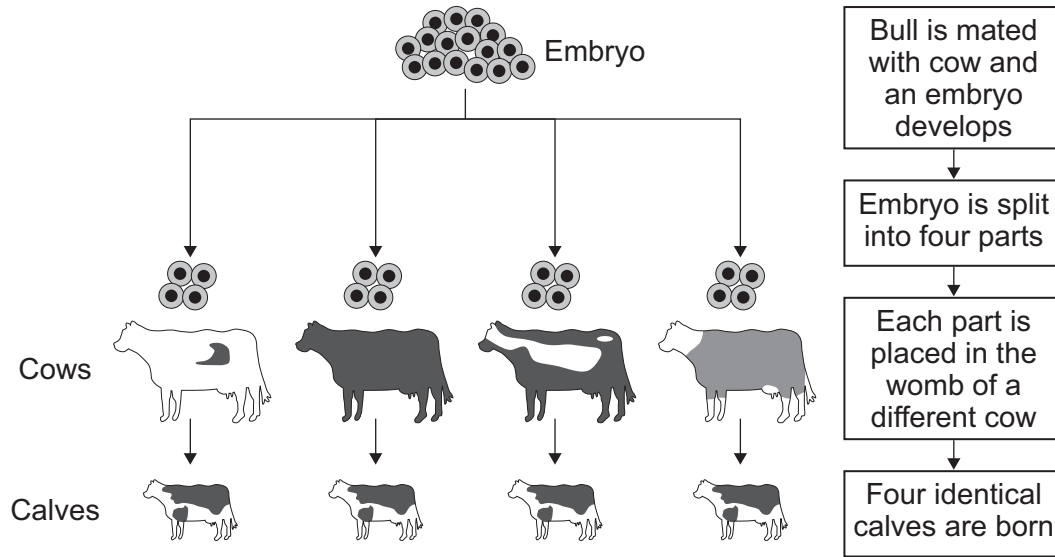
4 (a) (i) The colour of a rabbit's fur is known as a
(1 mark)

4 (a) (ii) This colour is controlled by a
(1 mark)

4 (a) (iii) Each sex cell of a rabbit is known as a
(1 mark)



4 (b) The diagram shows one way of producing calves.



Use words from the box to complete the sentences.

asexual clones cuttings gametes genetic sexual

A bull was mated with a cow.

This is reproduction.

The embryo produced was split into four parts.

The calves in the diagram have identical genetic information.

This is because the calves were produced by reproduction.

The identical calves are known as

(3 marks)

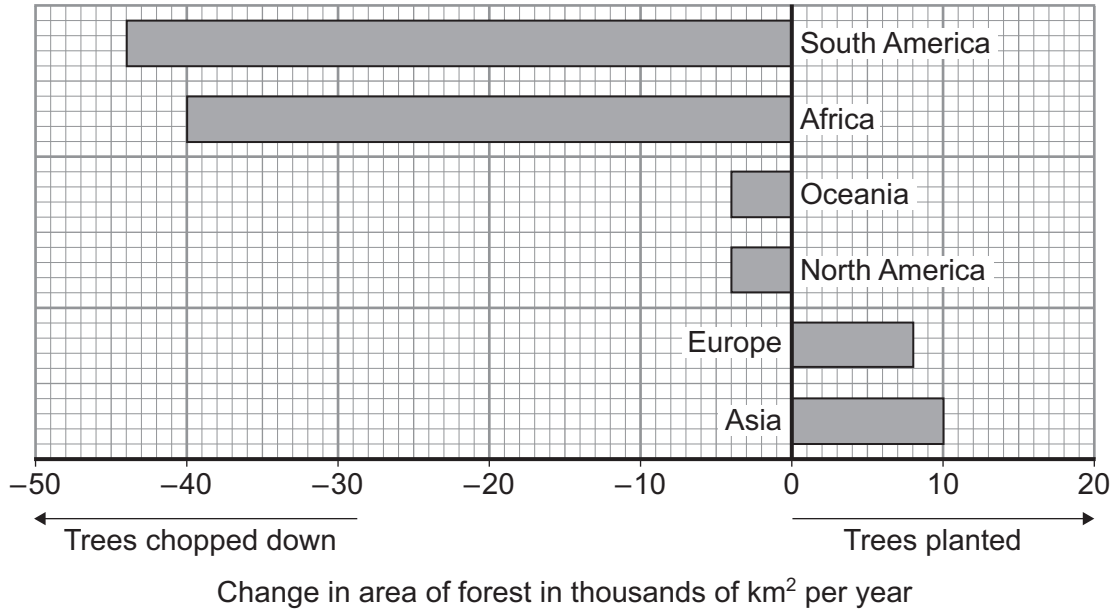
6

Turn over ▶



5 In many parts of the world, forests are being chopped down (deforestation) so that the land can be used to grow food crops. In other parts, trees are planted to produce new forests.

The graph shows how the area of forest in each of the continents is changing each year.



5 (a) (i) What area of forest is being lost in Africa each year?

Area = thousand km²
(1 mark)

5 (a) (ii) Use Steps 1, 2 and 3 to calculate the total change to the area of forest each year.

Step 1 Calculate the total area of trees chopped down.

.....

Total area chopped down = thousand km²

Step 2 Calculate the total area of trees planted.

.....

Total area planted = thousand km²



Step 3 Use your answers from **Steps 1** and **2** to calculate the total change in the area of forest.

.....

Total change in area of forest thousand km²
(3 marks)

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

5 (b) (i) Large scale deforestation reduces the number of species of

- plants only.
- animals only.
- both animals and plants.

(1 mark)

5 (b) (ii) The remains of the trees are broken down into carbon dioxide by

- lichens.
- microorganisms.
- plants.

(1 mark)

5 (b) (iii) The gas released into the atmosphere when trees are burned is

- carbon dioxide.
- methane.
- oxygen.

(1 mark)

7

Turn over ►



- 6 The *Invozell* device below is used in a new IVF (in-vitro fertilisation) treatment. Sperm and eggs are placed in the device which is then placed in the woman's vagina.

The photograph of *Invozell* device is not reproduced here due to third-party copyright constraints.

The table compares standard IVF treatment with *Invozell* IVF treatment.

	Standard IVF treatment	<i>Invozell</i> IVF treatment
Success rate	29.6%	19.7%
Cost	£2500	£900
Laboratory equipment needed	Extra equipment needed	None
Fertility problems that can be treated	100%	50%
Hormone treatment needed	Yes	Yes
When the embryos can be seen	Within hours	After 3 days



Using **only** the information given in the table, answer these questions.

6 (a) Give **two** advantages of *Invozell* IVF treatment compared with standard IVF treatment.

1

.....

2

.....

(2 marks)

6 (b) Give **two** disadvantages of *Invozell* IVF treatment compared with standard IVF treatment.

1

.....

2

.....

(2 marks)

4

Turn over for the next question

Turn over ►



- 7 The photograph shows an *Anolis* lizard. This lizard lives on a tiny island.



Scientists investigated how the leg length of the *Anolis* lizards affected their survival. At the start of the investigation the *Anolis* lizards had a large range of leg lengths.

- The scientists placed six *Curly-tailed* lizards onto the island.
- The *Curly-tail* lizard is a predator of the *Anolis* lizard.
- After one year the population of *Anolis* lizards had halved.
- Nearly all the remaining *Anolis* lizards had long legs.

- 7 (a) Why did the population of *Anolis* lizards halve?

.....

(1 mark)

- 7 (b) The remaining *Anolis* lizards had long legs.

Suggest an explanation for this.

.....

(2 marks)



7 (c) Answer each of these questions by placing a tick (✓) in the correct box.

7 (c) (i) Which theory is supported by evidence from this investigation?

Global warming

Natural selection

Sustainability

(1 mark)

7 (c) (ii) Which scientist proposed this theory?

Darwin

Lamarck

Semmelweiss

(1 mark)

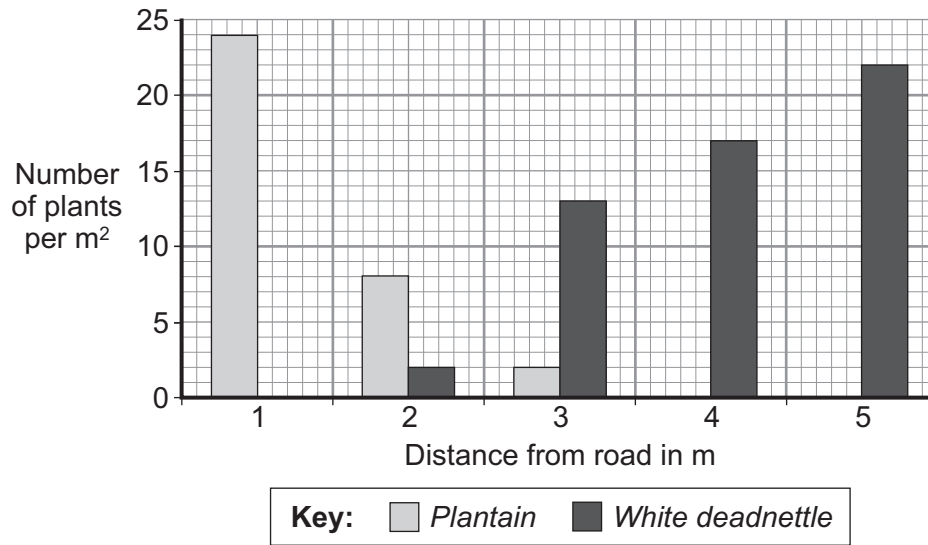
5

Turn over for the next question

Turn over ►



8 Students investigated the distribution of two plant species near a busy road. The bar chart shows their results.



8 (a) (i) Name the piece of apparatus used in sampling a 1m² piece of land.

..... (1 mark)

8 (a) (ii) Describe how this piece of apparatus could be used to obtain the data shown in the bar chart.

.....

 (2 marks)

8 (a) (iii) Describe the pattern shown in the data for the *Plantain* plants.

.....

 (1 mark)



8 (b) Suggest explanations for:

8 (b) (i) the distribution of the *White deadnettle* plants

.....

.....

.....

.....

.....

(2 marks)

8 (b) (ii) the distribution of the *Plantain* plants.

.....

.....

.....

.....

.....

(2 marks)

8

Turn over for the next question

Turn over ►



9 Influenza is an infectious disease. The influenza virus often mutates. This has made the World Health Organisation worried about another influenza *pandemic*.

9 (a) What is meant by a *pandemic*?

.....
.....

(1 mark)

9 (b) Explain why a mutation of the influenza virus might cause another influenza pandemic.

.....
.....
.....
.....
.....
.....
.....
.....
.....

(3 marks)

4

END OF QUESTIONS

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