Write your name here

Surname	Other names

Centre Number | | | | | |

Candidate Number | | | | |

Edexcel GCSE

Biology/Science

Unit B1: Influences on Life

Foundation Tier

Monday 20 May 2013 – Afternoon
Time: 1 hour

Paper Reference
5BI1F/01

You must have:
Calculator, ruler

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

Information

- The total mark for this paper is 60.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed
  – *you should take particular care with your spelling, punctuation and grammar, as well as the clarity of expression, on these questions.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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P 4 1 9 3 0 A 0 1 2 0

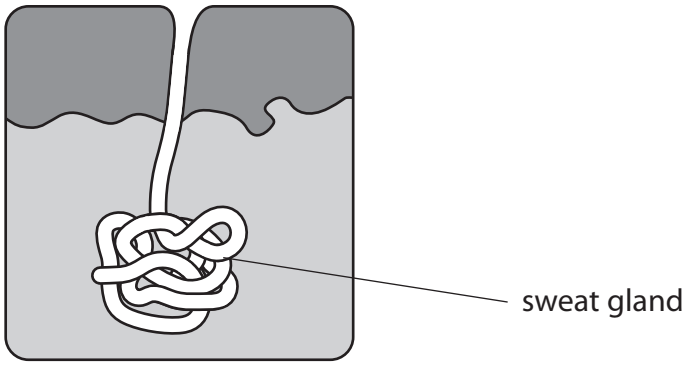
PEARSON

Answer ALL questions

Some questions must be answered with a cross in a box ☒.
If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Thermoregulation

1 The diagram shows a sweat gland in a section of skin.



(a) Explain how the sweat gland helps to cool the body.

(2)

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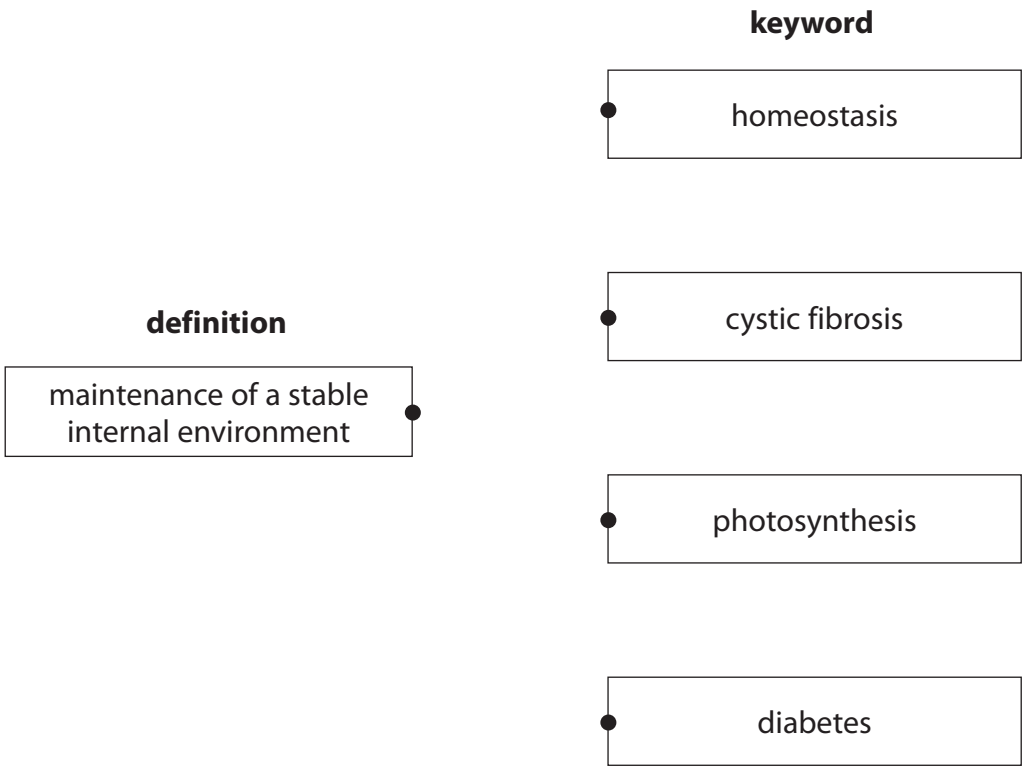
(b) Draw **one** straight line from the definition to the keyword.

(1)



(c) (i) The hypothalamus is involved in regulating body temperature.

Complete the sentence by putting a cross (☒) in the box next to your answer.

The hypothalamus is part of the

(1)

- ☒ **A** brain
- ☒ **B** liver
- ☒ **C** lungs
- ☒ **D** pancreas

(ii) Explain how shivering can help a person regulate their body temperature.

(2)

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(iii) Describe how body hair helps to control a person's temperature on a cold day.

(2)

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(Total for Question 1 = 8 marks)

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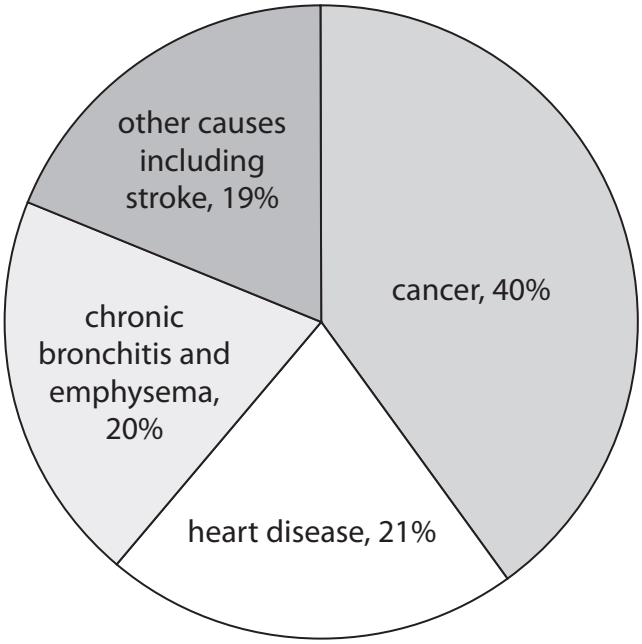
Question 2 is on the next page

Drugs

2 The pie chart shows the causes of death of people who smoked tobacco.



(a) (i) Complete the sentence by putting a cross (☒) in the box next to your answer.

People who smoke tobacco are most likely to die from

(1)

☒ **A** chronic bronchitis and emphysema

☒ **B** heart disease

☒ **C** cancer

☒ **D** other causes including stroke

(ii) The pie chart is based on a sample of 5000 people who smoked tobacco.

Calculate how many of these people died from chronic bronchitis and emphysema.

(2)

answer = ... people

(iii) Explain how smoking tobacco can cause cancer.

(2)

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(b) (i) Caffeine is a type of drug.

Complete the sentence by putting a cross (☒) in the box next to your answer.

Caffeine is a

(1)

- ☒ **A** depressant
- ☒ **B** hallucinogen
- ☒ **C** painkiller
- ☒ **D** stimulant

(ii) Describe the effect caffeine can have on the human body.

(2)

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(Total for Question 2 = 8 marks)

Classification

3 The photograph shows the mushroom, *Russula silvicola*.

Russula silvicola is a multicellular organism that does not have chlorophyll.

(a) (i) Complete the sentence by putting a cross (☒) in the box next to your answer.

Russula silvicola belongs to the kingdom

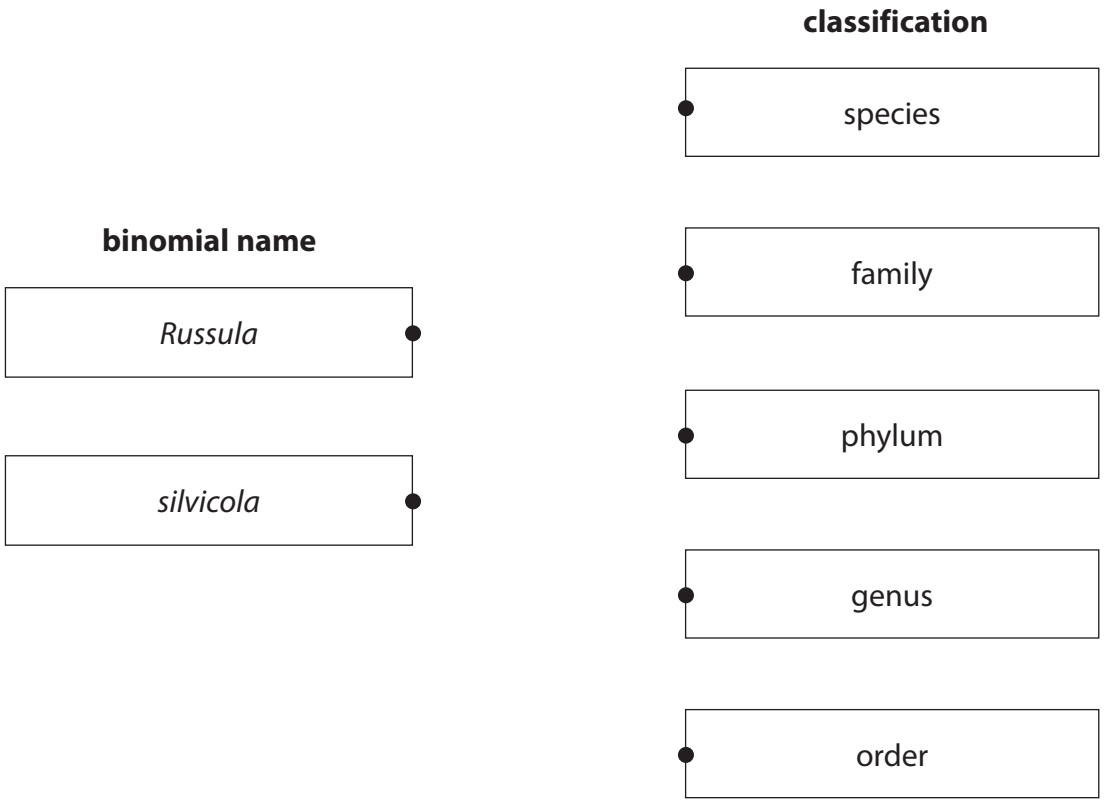
(1)

- ☒ **A** Animalia
- ☒ **B** Fungi
- ☒ **C** Prokaryotes
- ☒ **D** Protoctista

(ii) *Russula silvicola* is the binomial name of this mushroom.

Draw **one** straight line from each part of the binomial name to its classification.

(2)



(b) State **two** characteristics of the kingdom Plantae.

(2)

1 .....

.....

2 .....

.....

(c) (i) Vertebrates belong to the kingdom Animalia.

Use words from the box to complete the following sentence.

(2)

Chordata	chromosome	backbone
Prokaryote	Protoctista	cell

Vertebrates are members of the phylum ..... and most have a ..... running the length of the body.

(ii) State the structures that vertebrate organisms use to absorb oxygen from their surroundings.

(3)

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(Total for Question 3 = 10 marks)

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Question 4 is on the next page

Infectious diseases

4 Cholera is a disease caused by a pathogen.

(a) (i) State the type of pathogen that causes cholera.

(1)

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(ii) Complete the sentence by putting a cross (☒) in the box next to your answer.

The cholera pathogen is spread

(1)

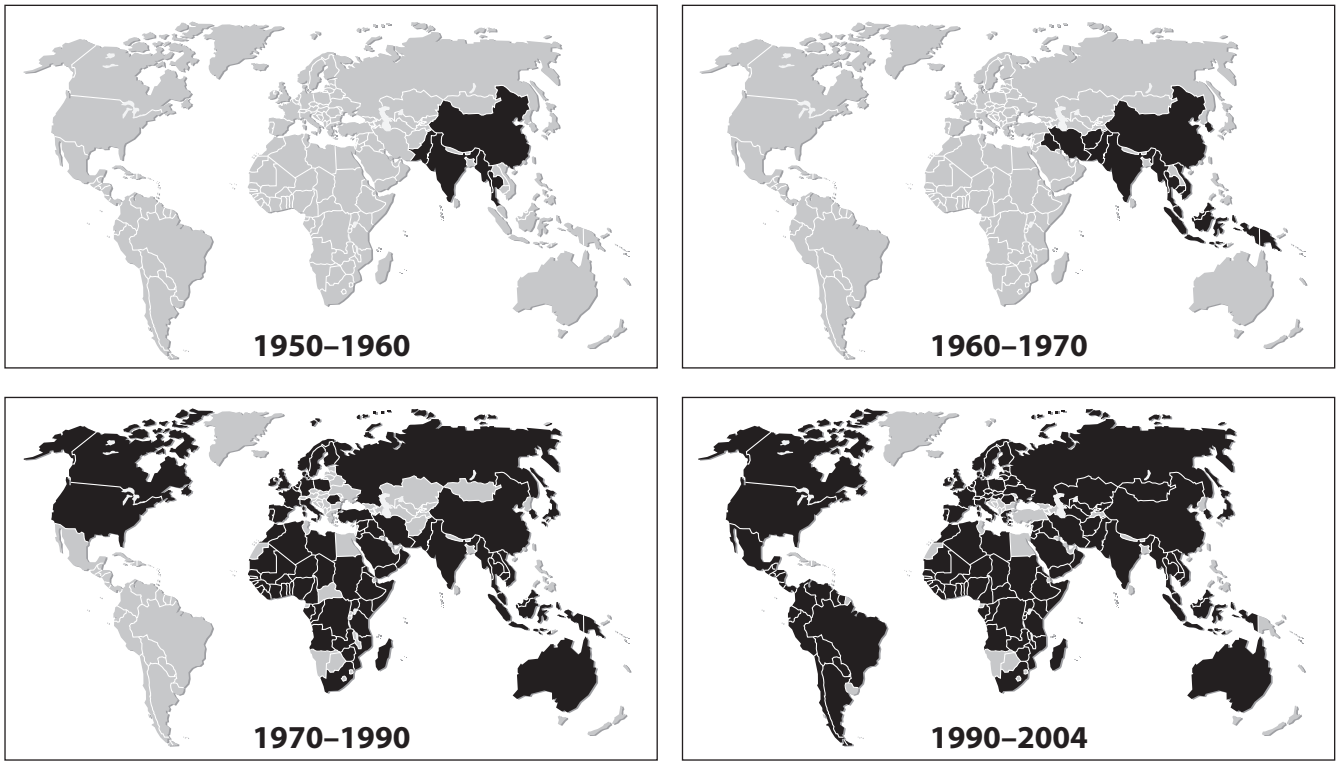
☒ **A** in air

☒ **B** by houseflies

☒ **C** by mosquitoes

☒ **D** in water

(b) The maps of the world show areas where there were cases of cholera recorded, from 1950 to 2004.
The areas where cholera was recorded are shaded in black.



(i) Describe the trend in the recorded cases of cholera shown in the maps.

(1)

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(ii) Suggest **two** reasons for this trend.

(2)

1 .....

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2 .....

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(c) Explain how the **physical** barriers of the body can help to prevent infection by pathogens.

(3)

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(d) State the names of **two** chemicals that can be used to control infection.

(2)

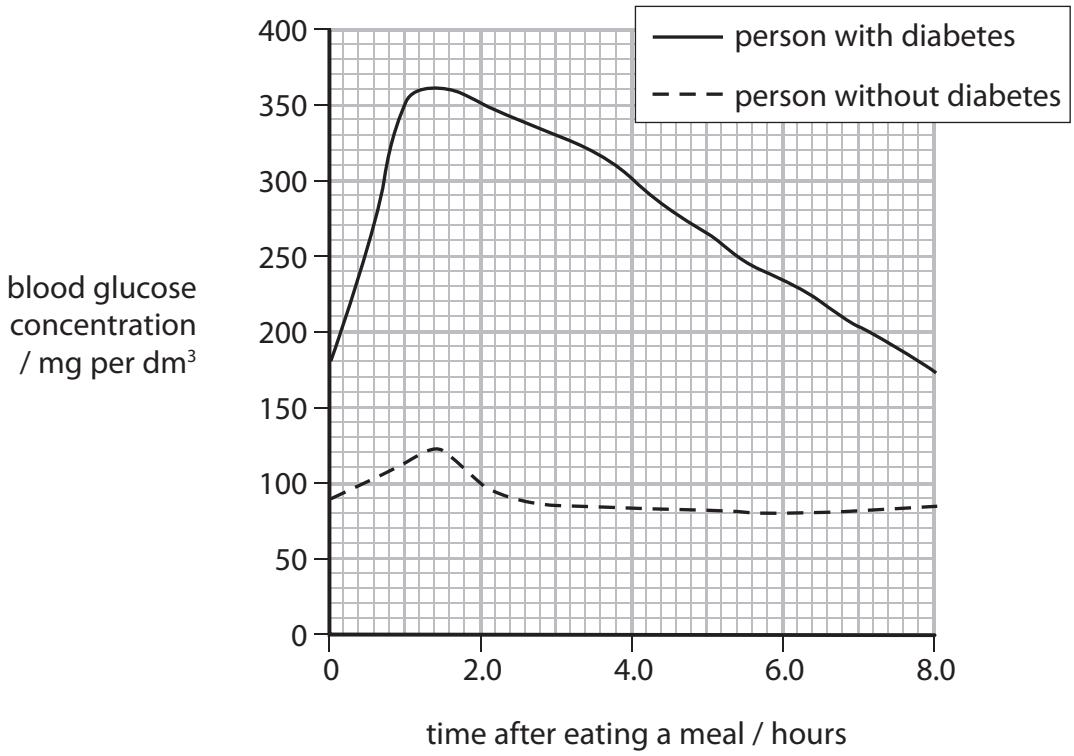
1 .....

2 .....

(Total for Question 4 = 10 marks)

Hormones

5 The graph shows the blood glucose concentrations of two people, over an eight-hour period, after eating a meal.



(a) (i) Describe the changes in blood glucose concentration for the person with diabetes.

(2)

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(ii) Calculate the difference in blood glucose concentration between the person with diabetes and the person without diabetes **two** hours after eating a meal.

(2)

answer ..... mg per dm^3

(iii) In which two-hour period did the blood glucose concentration change the most for the person with diabetes?

Put a cross (☒) in the box next to your answer.

(1)

☒ **A** 0 – 2 hours

☒ **B** 2 – 4 hours

☒ **C** 4 – 6 hours

☒ **D** 6 – 8 hours

(b) Name the organ that releases insulin to regulate blood glucose concentrations.

(1)

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*(c) Plant hormones affect the way plants grow.

Explain how growth hormones cause phototropism and gravitropism in plants.

(6)

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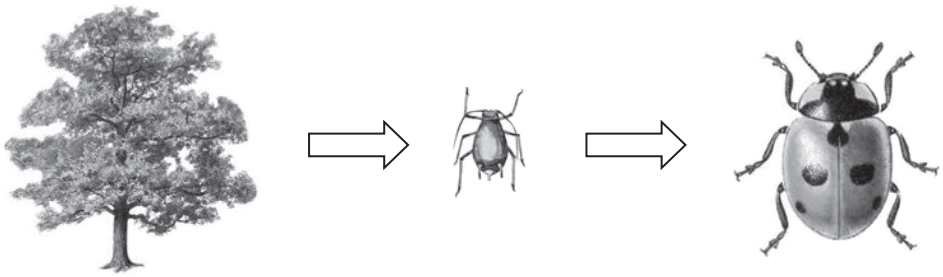
(Total for Question 5 = 12 marks)

Ecosystems

6 The diagram shows the numbers and biomass of organisms in a food chain.



organism	number	biomass / g
oak tree	1	500 000
aphids	10 000	1 000
ladybirds	200	50

(a) (i) Calculate the difference in biomass between the aphids and the ladybirds.

(2)

answer = ...

(ii) Energy is lost between each trophic level of a food chain.

Suggest how this energy is lost between each trophic level.

(2)

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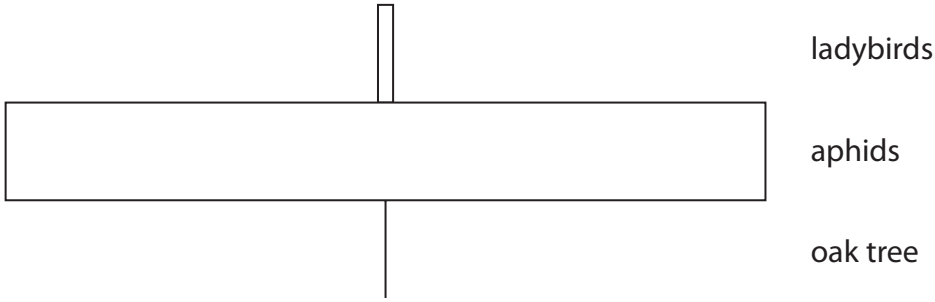
(iii) The diagram shows a pyramid of numbers for this food chain.



In the box, draw a pyramid of biomass for this food chain.

(1)

(b) (i) Carbon can be recycled in the environment.

State the name of the process in which plants remove carbon dioxide from the atmosphere.

(1)

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*(ii) Explain how the recycling of paper and plastics can benefit the environment.

(6)

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(Total for Question 6 = 12 marks)

TOTAL FOR PAPER = 60 MARKS

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