

Paper Reference(s) 5BI1F/01

Edexcel GCSE

Biology/Science

Unit B1: Influences on Life

Foundation Tier

Monday 20 May 2013 – Afternoon

Time: 1 hour plus your additional time allowance

INSTRUCTIONS TO CANDIDATES

Write your centre number, candidate number, surname, initials and your signature in the boxes below. Check that you have the correct question paper.

Centre No.							
Candidate No.							
Surname							
Initial(s)							
Signature							
Paper Reference	5	B	I	1	F	/	0 1

X41930A



- Use **BLACK** ink or ball-point pen.
- Answer **ALL** questions.
- Answer the questions in the spaces provided – there may be more space than you need.

MATERIALS REQUIRED FOR EXAMINATION

Calculator, ruler

ITEMS INCLUDED WITH QUESTION PAPERS

Nil

INFORMATION FOR CANDIDATES

- 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 TO CANDIDATES

- 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)

Answer ALL questions

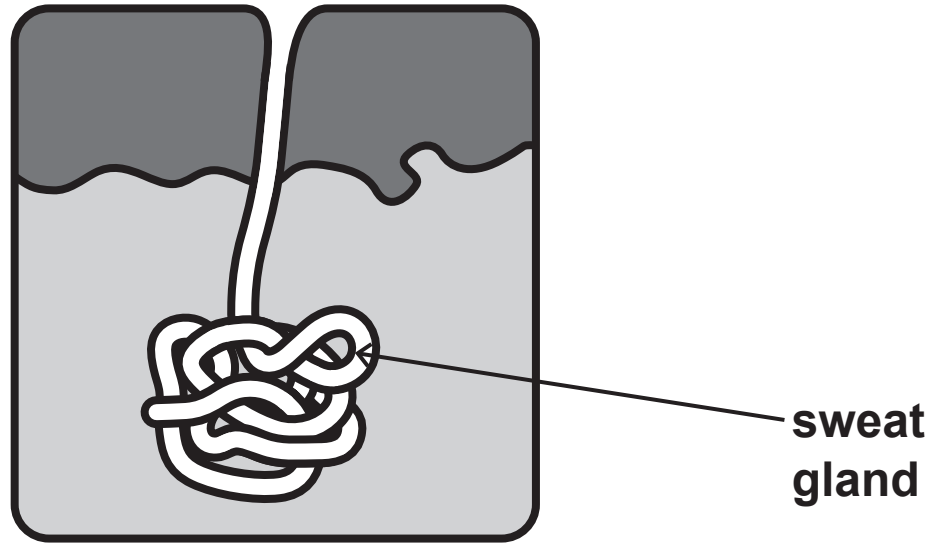
Some questions must be answered with a cross in a box . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

(Questions begin on next page)

(Turn over)

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 marks)

(Question continues on next page)

(Turn over)

(b) Draw ONE straight line from the definition to the keyword. (1 mark)

DEFINITION

**maintenance of
a stable internal
environment**

KEYWORD

homeostasis

cystic fibrosis

photosynthesis

diabetes

(Question continues on next page)

(Turn over)

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

Complete the sentence by putting a cross (☒) in the box next to your answer. (1 mark)

The hypothalamus is part of the

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

(ii) Explain how shivering can help a person regulate their body temperature. (2 marks)

(Question continues on next page)

(Turn over)

(iii) Describe how body hair helps to control a person's temperature on a cold day. (2 marks)

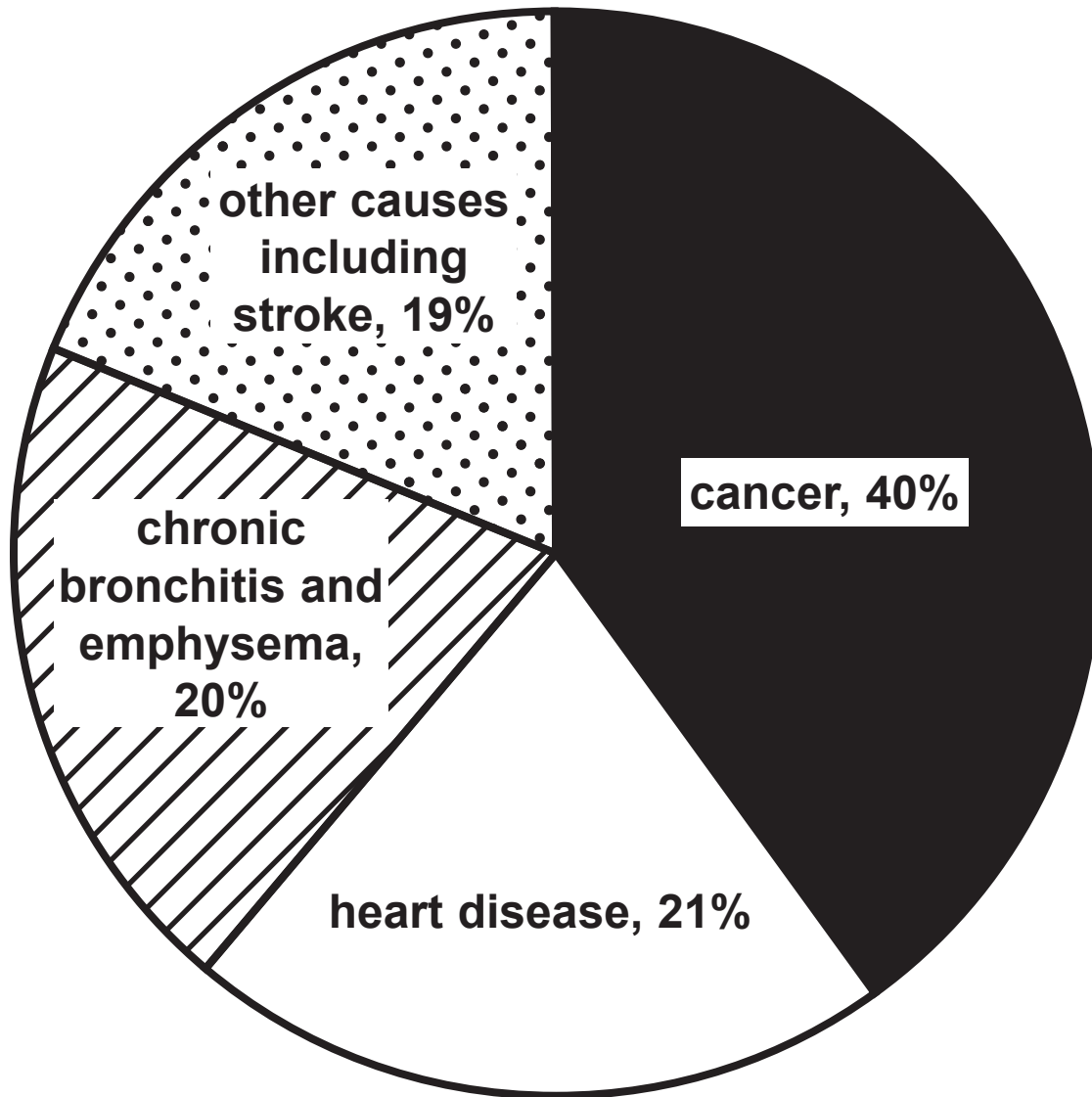
(TOTAL FOR QUESTION 1 = 8 MARKS)

(Questions continue on next page)

(Turn over)

DRUGS

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



(Question continues on next page)

(Turn over)

- (a) (i) Complete the sentence by putting a cross (☒) in the box next to your answer. (1 mark)

People who smoke tobacco are most likely to die from

- 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 marks)

answer = _____ people

(Question continues on next page)

(Turn over)

(iii) Explain how smoking tobacco can cause cancer. (2 marks)

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

Complete the sentence by putting a cross (☒) in the box next to your answer. (1 mark)

Caffeine is a

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

(Question continues on next page)

(Turn over)

(ii) Describe the effect caffeine can have on the human body. (2 marks)

(TOTAL FOR QUESTION 2 = 8 MARKS)

(Questions continue on next page)

(Turn over)

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. (1 mark)

***Russula silvicola* belongs to the kingdom**

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

(Question continues on next page)

(Turn over)

- (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 marks)

BINOMIAL NAME		CLASSIFICATION	
<input type="text" value="Russula"/>	●	<input type="text" value="species"/>	●
<input type="text" value="silvicola"/>	●	<input type="text" value="family"/>	●
		<input type="text" value="phylum"/>	●
		<input type="text" value="genus"/>	●
		<input type="text" value="order"/>	●

(Question continues on next page)

(Turn over)

**(b) State TWO characteristics of the kingdom Plantae.
(2 marks)**

1

2

(Question continues on next page)

(Turn over)

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

Use words from the box to complete the following sentence. (2 marks)

Chordata	chromosome	backbone
Prokaryote	Protoctista	cell

Vertebrates are members of the

phylum _____ and most have

a _____ running the length of the body.

(Question continues on next page)

(Turn over)

- (ii) State the structures that vertebrate organisms use to absorb oxygen from their surroundings. (3 marks)

(TOTAL FOR QUESTION 3 = 10 MARKS)

(Questions continue on next page)

(Turn over)

INFECTIOUS DISEASES

4 Cholera is a disease caused by a pathogen.

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

(ii) Complete the sentence by putting a cross (☒) in the box next to your answer. (1 mark)

The cholera pathogen is spread

- A in air**
- B by houseflies**
- C by mosquitoes**
- D in water**

(Question continues on next page)

(Turn over)

(b) The maps of the world, on the separate sheet, 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 mark)

(ii) Suggest TWO reasons for this trend. (2 marks)

1

2

(Question continues on next page)

(Turn over)

(c) Explain how the PHYSICAL barriers of the body can help to prevent infection by pathogens. (3 marks)

(d) State the names of TWO chemicals that can be used to control infection. (2 marks)

1 _____

2 _____

(TOTAL FOR QUESTION 4 = 10 MARKS)

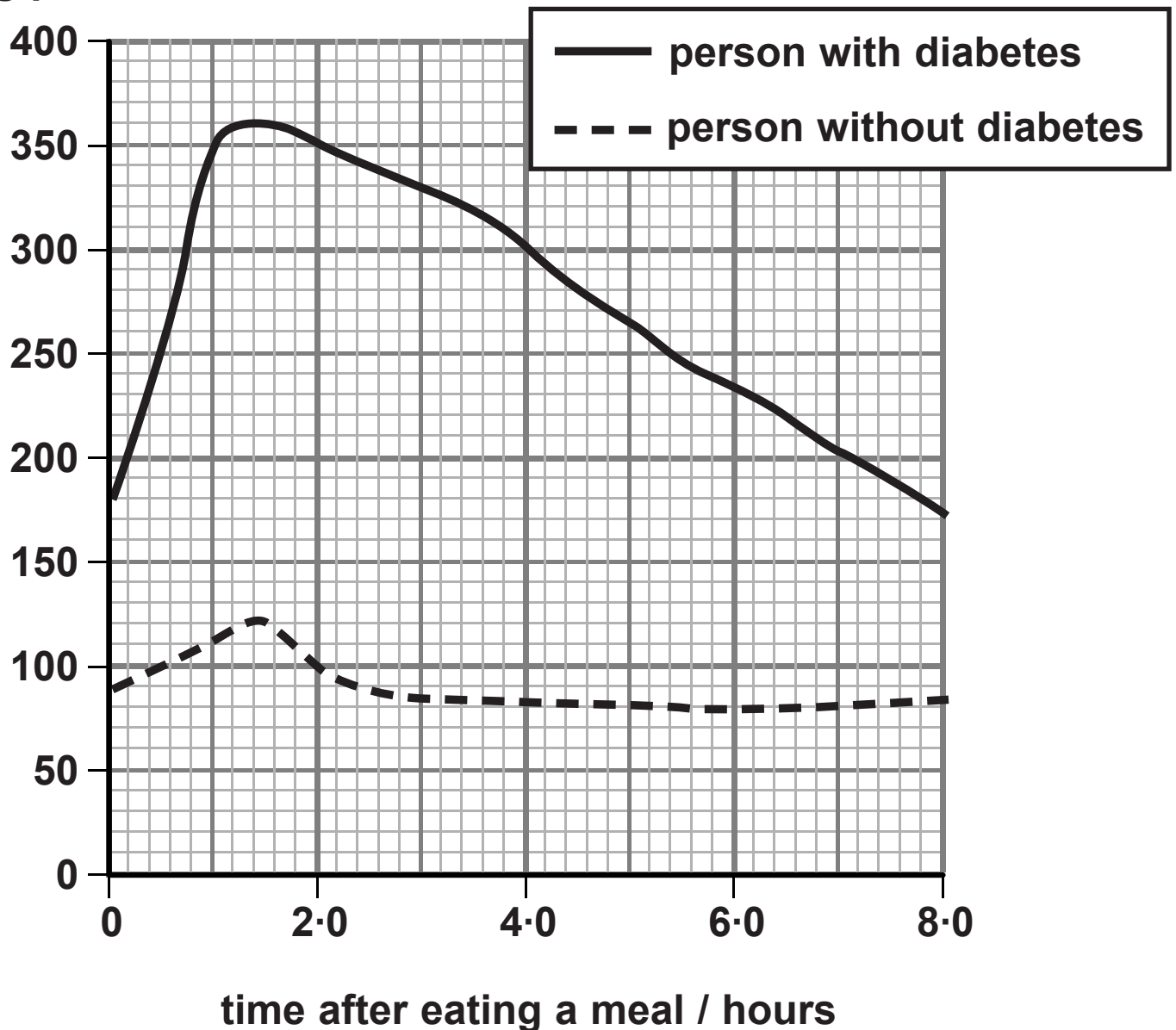
(Question continues on next page)

(Turn over)

HORMONES

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

blood glucose
concentration
/ mg per dm³



(Question continues on next page)

(Turn over)

- (a) (i) Describe the changes in blood glucose concentration for the person with diabetes. (2 marks)

- (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 marks)

answer _____ mg per dm³

(Question continues on next page)

(Turn over)

(iii) In which two-hour period did the blood glucose concentration change the most for the person with diabetes? (1 mark)

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

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 mark)

(Question continues on next page)

(Turn over)

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

Explain how growth hormones cause phototropism and gravitropism in plants. (6 marks)

(Continue your answer on next page)

(Turn over)

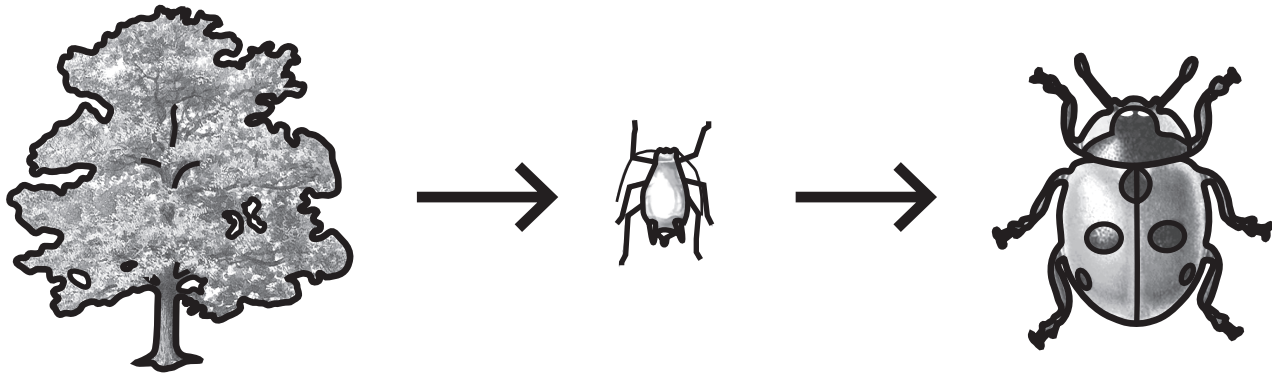
(TOTAL FOR QUESTION 5 = 12 MARKS)

(Questions continue on next page)

(Turn over)

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 marks)

answer = _____

(Question continues on next page)

(Turn over)

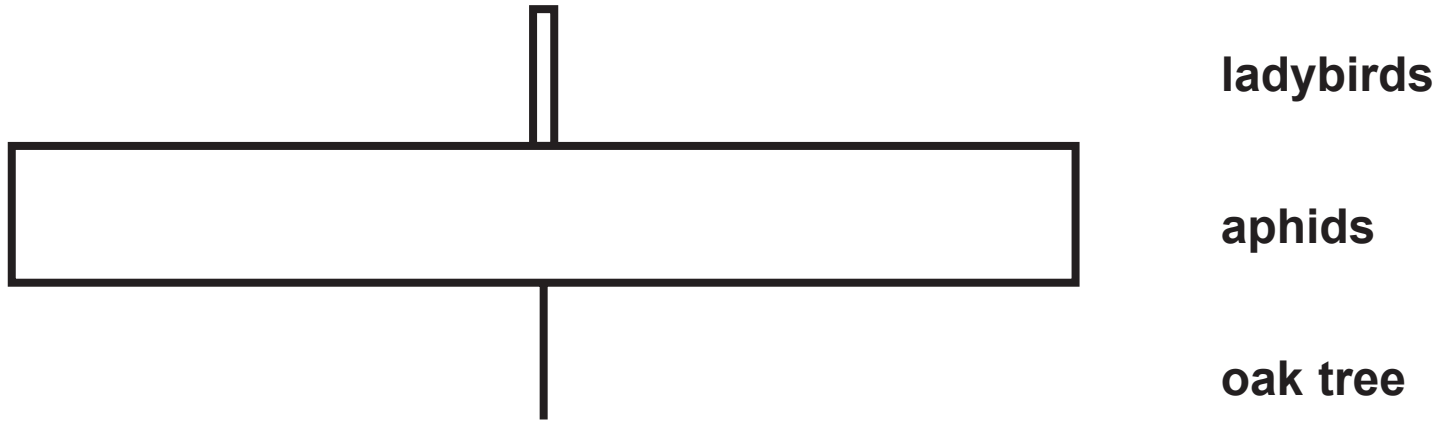
(ii) Energy is lost between each trophic level of a food chain.

Suggest how this energy is lost between each trophic level. (2 marks)

(Question continues on next page)

(Turn over)

(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 mark)

(Question continues on next page)

(Turn over)

(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 mark)**

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

(Continue your answer on next page)

(Turn over)

(TOTAL FOR QUESTION 6 = 12 MARKS)

TOTAL FOR PAPER = 60 MARKS

END

Maps for use with Question 4(b)

