Write your name here

Surname	Other names

Centre Number | Candidate Number

Edexcel GCSE

Biology/Science

Unit B1: Influences on Life

Foundation Tier

Friday 1 March 2013 – Morning
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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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 ☒.

Disease

1 Cholera is a disease that can be caused by drinking contaminated water.

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

Cholera is caused by a

(1)

- ☒ **A** bacterium
- ☒ **B** fungus
- ☒ **C** housefly
- ☒ **D** mosquito

(ii) Infectious diseases are caused by pathogens.

Use words from the box to complete the following sentences.

(2)

viruses	mosquitoes	fleas	food	antiseptics

The *Salmonella* bacterium is a pathogen which can be spread by contaminated ..... .

Influenza is caused by ..... in the air.

(iii) Describe how pathogens are prevented from entering the human body.

(2)

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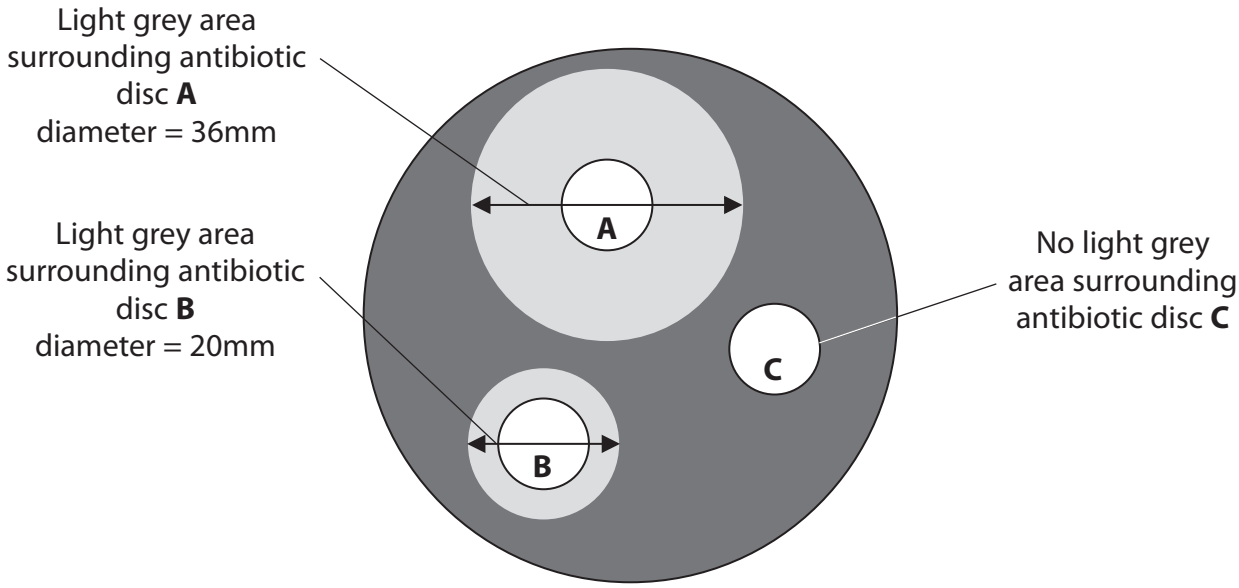
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(b) The diagram shows the results of an investigation testing the effect of three antibiotic discs, **A**, **B** and **C** on bacterial growth.

The dark grey area shows bacterial growth.

The light grey area shows where the bacteria **did not** grow.



(i) Calculate the difference in diameter of the light grey areas surrounding disc **A** and disc **B**.

(1)

..... mm

(ii) Explain which antibiotic disc, **A**, **B** or **C**, has controlled bacterial growth most effectively.

(2)

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.....

(Total for Question 1 = 8 marks)

Inheritance of eye colour

2 Jane has blue eyes and Keith has brown eyes.

They have a daughter Sue who has blue eyes.

The allele for brown eyes is dominant over the allele for blue eyes.

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

Sue has the genotype

(1)

☒ **A** BB

☒ **B** Bb

☒ **C** bB

☒ **D** bb

(ii) Keith has the genotype Bb.

State the genetic term used to describe an individual with two different alleles for the same gene.

(1)

.....

(iii) Complete the Punnett square for Jane and Keith.

(1)

		Keith's gametes	
		B	**b**
Jane's gametes	**b**		
	b		

(iv) State the percentage chance that their offspring will have brown eyes.

(1)

.....

(b) (i) Sue has cystic fibrosis (CF).

Her parents, Jane and Keith showed no symptoms of this disorder.

CF is a genetic disorder caused by recessive alleles.

Explain how Sue inherited CF.

(2)

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(ii) Describe why CF may cause Sue to have breathing problems.

(2)

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(Total for Question 2 = 8 marks)

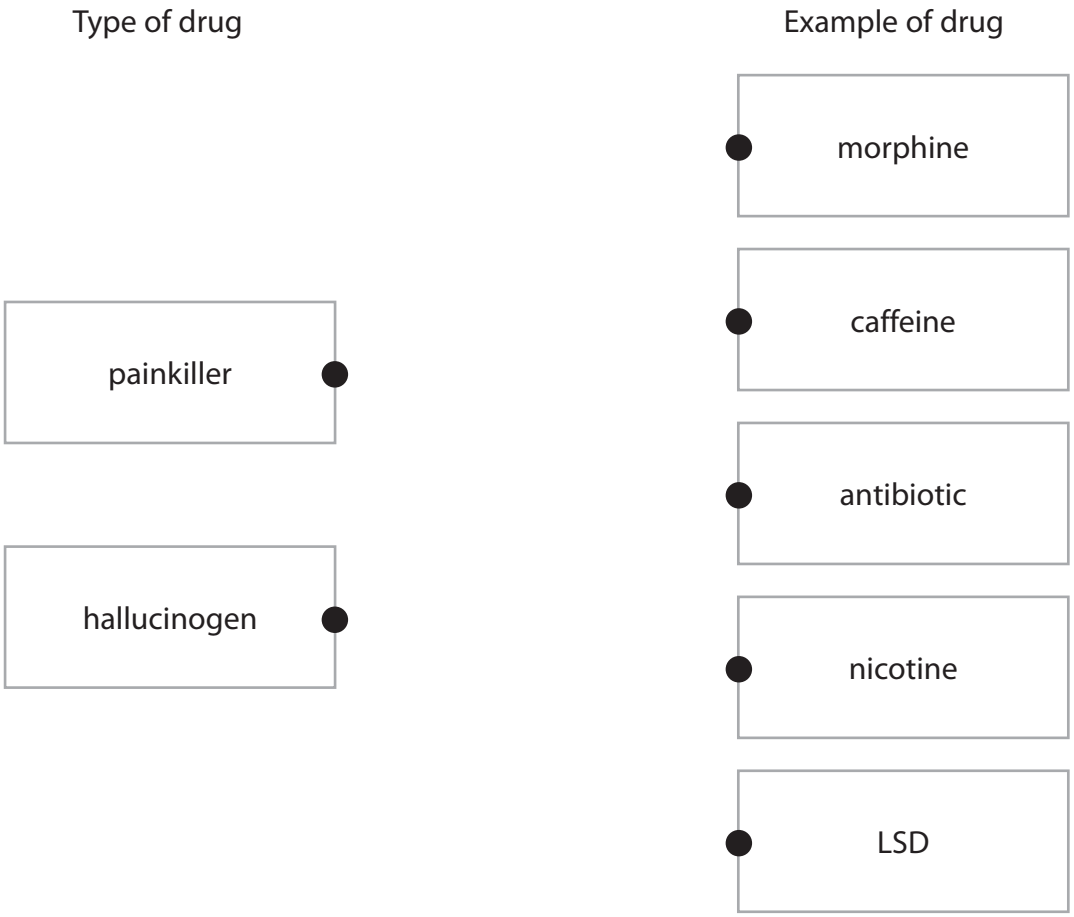
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Drugs

3 A drug is a substance that can change the way the human body works.

(a) Draw **one** straight line from each type of drug to an example of that type of drug.

(2)



(b) (i) Tar is a chemical that is found in tobacco smoke.

Tar is a carcinogen.

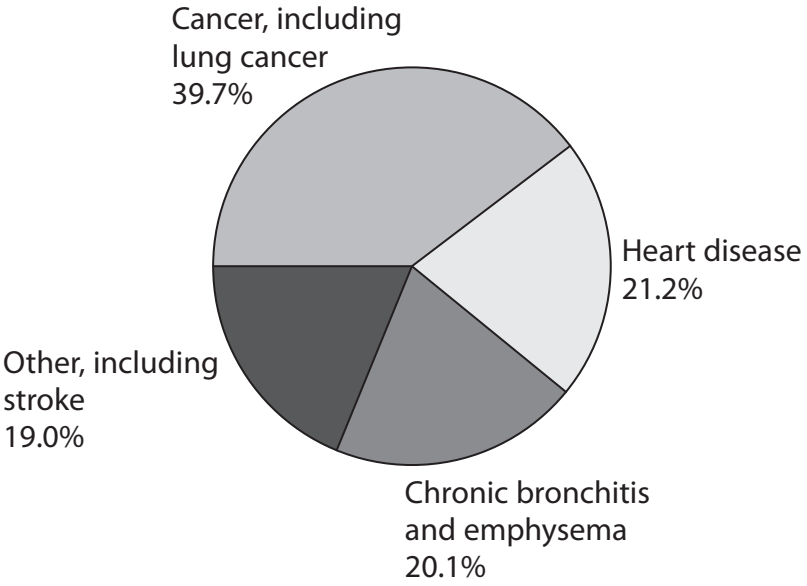
Define the term carcinogen.

(1)

.....

.....

(ii) The pie-chart shows the causes of death for people in the UK who smoke tobacco.



Calculate the total percentage of deaths from cancer and heart disease for smokers in the UK.

(2)

Answer ..... %

(iii) Explain how smoking tobacco may affect a person's ability to exercise.

(3)

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(c) Alcohol abuse can have long-term effects on the human body.

Describe the long-term effects of alcohol abuse on the human body.

(2)

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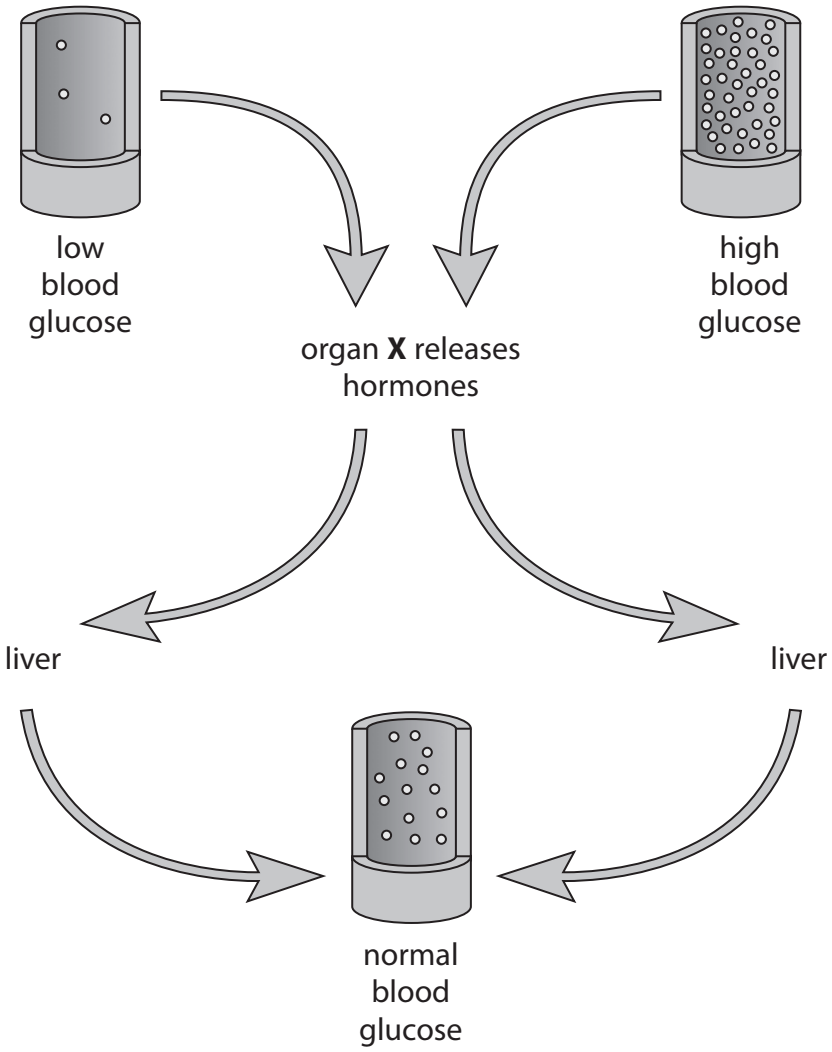
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(Total for Question 3 = 10 marks)

Regulation

4 (a) The diagram shows how glucose is regulated in the human body.



(i) What is the name of organ **X**?

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

(1)

☒ **A** brain

☒ **B** heart

☒ **C** stomach

☒ **D** pancreas

(ii) State the name of the hormone that lowers the blood glucose level.

(1)

.....

(iii) Describe what happens in the liver to lower the blood glucose level.

(2)

(b) (i) Temperature can also be regulated in the human body.

Describe how changes in external temperature are detected by the human body.

(2)

(ii) Explain how sweat glands can help to regulate body temperature.

(2)

(iii) Explain how the hair on a person's body can act to keep the body warm.

(2)

(Total for Question 4 = 10 marks)

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Pollution

5 Lichen species grow on trees and are air quality indicators.

The table shows the sulfur dioxide concentrations in three areas (A, B and C).

Each area contained 1000 trees and the number of trees with lichen growing on them was recorded in the table.

Area	Sulfur dioxide concentration / ppm	Number of trees with lichen growing on them
A	5	204
B	1	437
C	15	14

(a) (i) Calculate the difference in the number of trees in area A and area C with lichen growing on them.

(1)

Answer .....

(ii) Describe the effect of sulfur dioxide on the number of lichen.

(2)

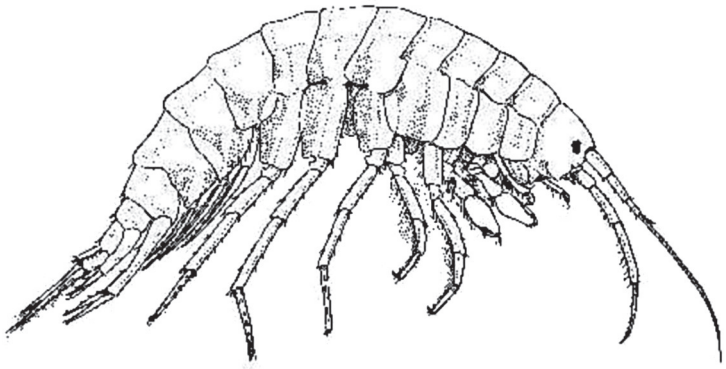
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This freshwater shrimp is an example of a clean water indicator.



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

Clean water can also be indicated by the presence of

(1)

☒ **A** blackspot fungi

☒ **B** bloodworms

☒ **C** sludgeworms

☒ **D** stoneflies

(ii) Use words from the box to complete the following sentences.

auxins	nitrates	decomposers
increases	decreases	

(2)

As the human population ..... , more food needs to be grown.

This can lead to more ..... being used which can pollute the environment.

*(iii) Explain how the process of eutrophication could occur in a stream and may lead to a reduction in the number of freshwater shrimps.

(6)

(Total for Question 5 = 12 marks)

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The axolotl

6 The axolotl is also called the mexican walking fish.

It is not a fish, it is an amphibian.



(a) (i) Suggest why scientists find it difficult to classify the axolotl.

(2)

.....

.....

.....

.....

(ii) All amphibians are vertebrates.
Which phylum do all vertebrates belong to?

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

(1)

☒ **A** chordata

☒ **B** mammalia

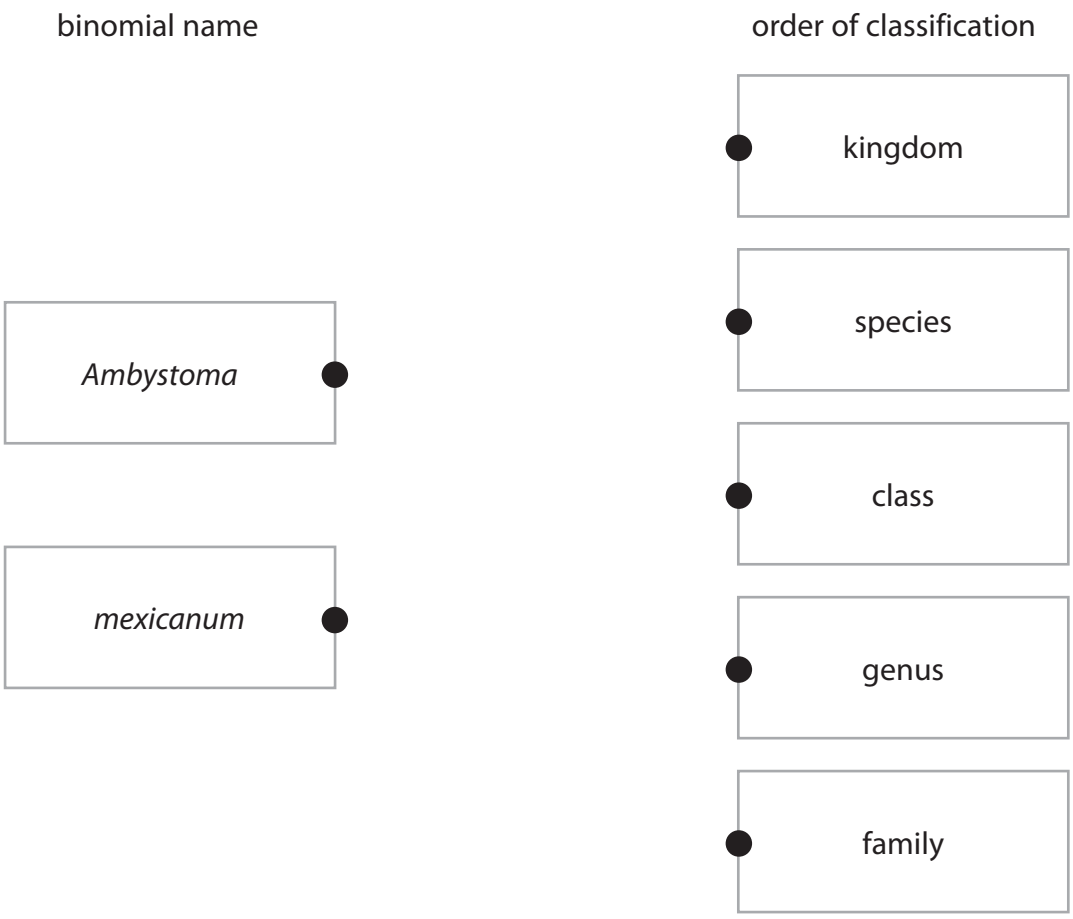
☒ **C** prokaryota

☒ **D** protoctista

(iii) The axolotl has the binomial name *Ambystoma mexicanum*.

Draw **two** straight lines to link the parts of the binomial name with the correct order of classification.

(2)



(iv) The axolotl cannot regulate its own body temperature.

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

An organism that relies on the environment to regulate its body temperature is known as

(1)

☒ **A** homeothermic

☒ **B** oviparous

☒ **C** poikilothermic

☒ **D** viviparous

*(b) The axolotl belongs to Animalia which is one of the five kingdoms.

Describe the main characteristics of the five kingdoms of organisms.

(6)

(Total for Question 6 = 12 marks)

TOTAL FOR PAPER = 60 MARKS

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