

Write your name here

Surname					Other names			
Pearson		Centre Number			Candidate Number			
Edexcel GCSE		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Biology/Science								
Unit B1: Influences on Life								
								Foundation Tier
Monday 15 January 2018 – Afternoon						Paper Reference		
Time: 1 hour						5BI1F/01		
You must have: Calculator, ruler							Total Marks	
							<input type="text"/>	

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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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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 ☒.

Pollution

1 Carbon dioxide and sulfur dioxide are air pollutants.

The table shows the mass of carbon dioxide added to and removed from the atmosphere per year by three processes.

process	mass of carbon dioxide / per year / tonnes	
	added to the atmosphere	removed from the atmosphere
X	140	0
Y	20	0
Z	0	135

(a) (i) Calculate the overall change in the mass of carbon dioxide in the atmosphere per year. (1)

..... tonnes

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

Process X occurs in animals, plants and bacteria.

Process X is

(1)

- A** breathing
- B** combustion
- C** photosynthesis
- D** respiration

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(iii) Process Z occurs in plants.

Name process Z.

(1)

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

Process Y is the burning of fossil fuels.

Some fossil fuels release sulfur dioxide into the atmosphere.

A fossil fuel that can release carbon dioxide and sulfur dioxide is

(1)

- A coal
- B ethanol
- C hydrogen
- D methane

(b) (i) Explain how blackspot fungus is used as an indicator species.

(2)

(ii) Explain how sulfur dioxide can cause acid rain.

(2)

(Total for Question 1 = 8 marks)



Reactions

2 The table shows the total stopping distance for a car when driven at different speeds.

speed / mph	reaction distance / metres	braking distance / metres	total stopping distance / metres
20	6	6	12
30	9	14	23
40	12	24	36
50	15	38	53
60	18	54	72
70	21	75	96

(a) (i) Calculate how many times greater the total stopping distance is at 60 mph than at 20 mph.

(2)

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

The estimated total stopping distance in metres for a car driven at 80 mph would be between

(1)

- A** 95 m – 105 m
- B** 110 m – 120 m
- C** 130 m – 135 m
- D** 150 m – 160 m



(b) Some drugs can affect reaction times.

(i) Which drug increases reaction time?

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

(1)

- A nicotine
- B caffeine
- C alcohol
- D paracetamol

(ii) The drug morphine can also increase reaction time.

Describe how morphine has this effect on reaction time.

(2)

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(c) Car drivers react to the colour change of a traffic light.

Describe how this information travels from the eye to the brain.

(2)

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(Total for Question 2 = 8 marks)

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Plant growth

3 The photograph shows a bean plant growing in soil.



(Source: @ alarmy.com)

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

These roots have grown downwards because of

(1)

- A negative gravitropism
- B negative phototropism
- C positive gravitropism
- D positive phototropism

(ii) Suggest an advantage for the roots growing downwards.

(1)

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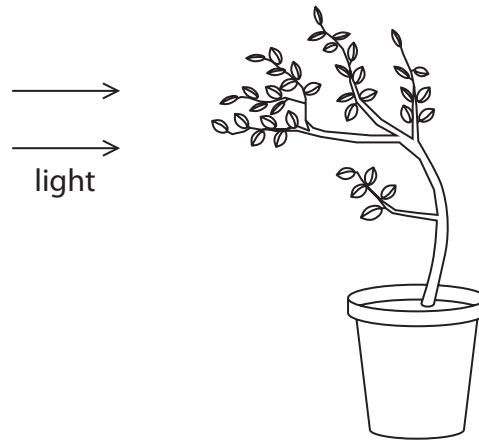
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(b) The diagram shows a plant responding to light from one direction.



(i) Describe the changes that occur in the shoot of a plant in response to light from one direction.

(2)

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(ii) Explain why the shoot of a plant will not grow if the tip is removed.

(2)

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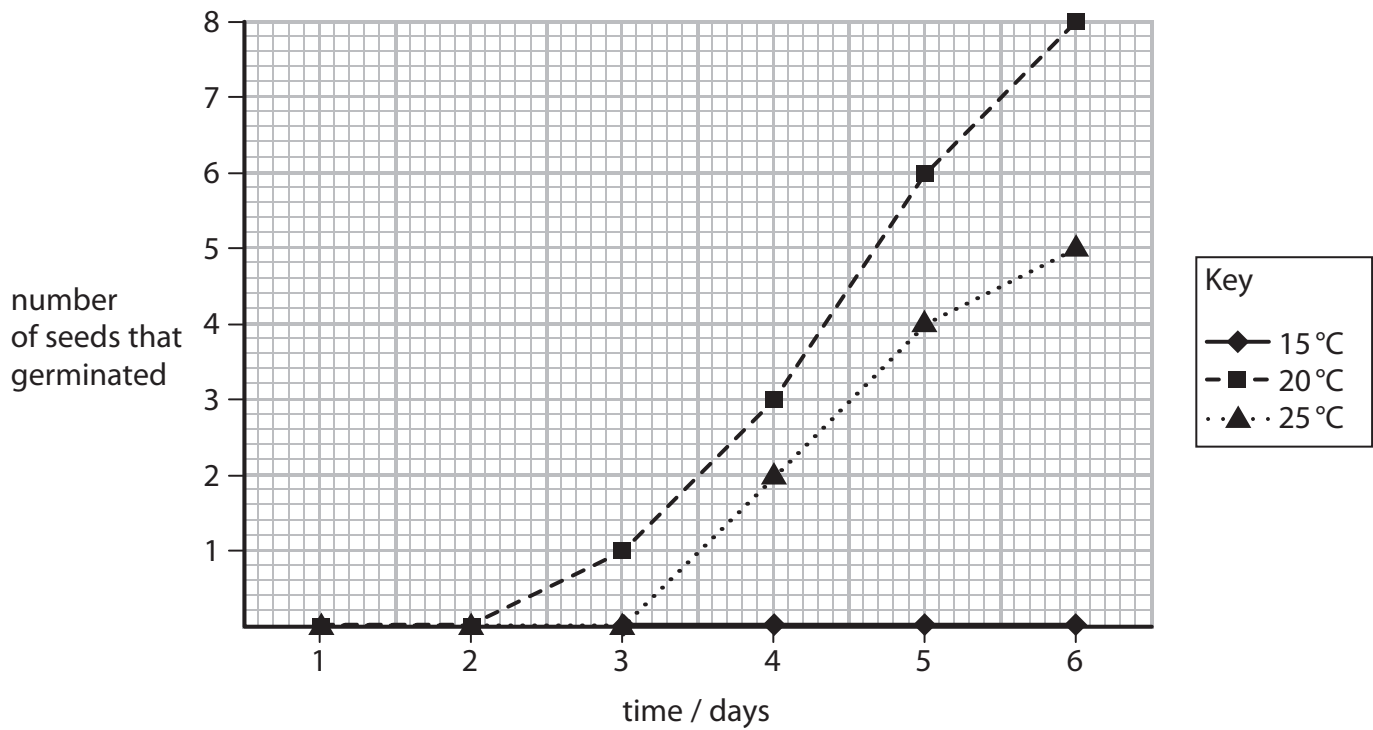
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(c) The graph shows the effect of temperature on the germination of seeds.



(i) Describe the effect of the three temperatures on the germination of these seeds.

(3)

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

The hormone that causes seed germination is

(1)

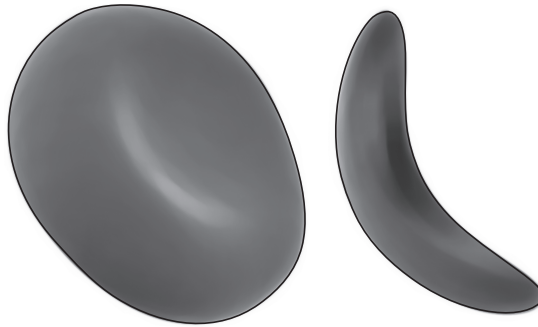
- A auxin
- B gibberellin
- C glucagon
- D insulin

(Total for Question 3 = 10 marks)



Sickle cell disease

- 4 The diagram shows two red blood cells.
One is affected by sickle cell disease and the other is not.



- (a) (i) Explain why a person with sickle cell disease can only exercise for a short period of time.

(3)

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.....



(ii) The inheritance of sickle cell disease can be represented using **D** or **d**.

Use words from the box to complete the following sentences.

(3)

recessive	heterozygous	phenotype
genotype	homozygous	dominant

The alleles **dd** represent the of a person with sickle cell disease.

The allele **d** is and when a person inherits two of these alleles, that person is

(b) John and Sally want to have children.

John and Sally both have the alleles **Dd** for sickle cell disease.

Complete the Punnett square and calculate the percentage probability of their first child inheriting sickle cell disease.

(2)

	D	d
D		
d		

probability %

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(c) Cystic fibrosis is another genetic disorder.

Explain why lung infections are more common in people with cystic fibrosis.

(2)

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(Total for Question 4 = 10 marks)

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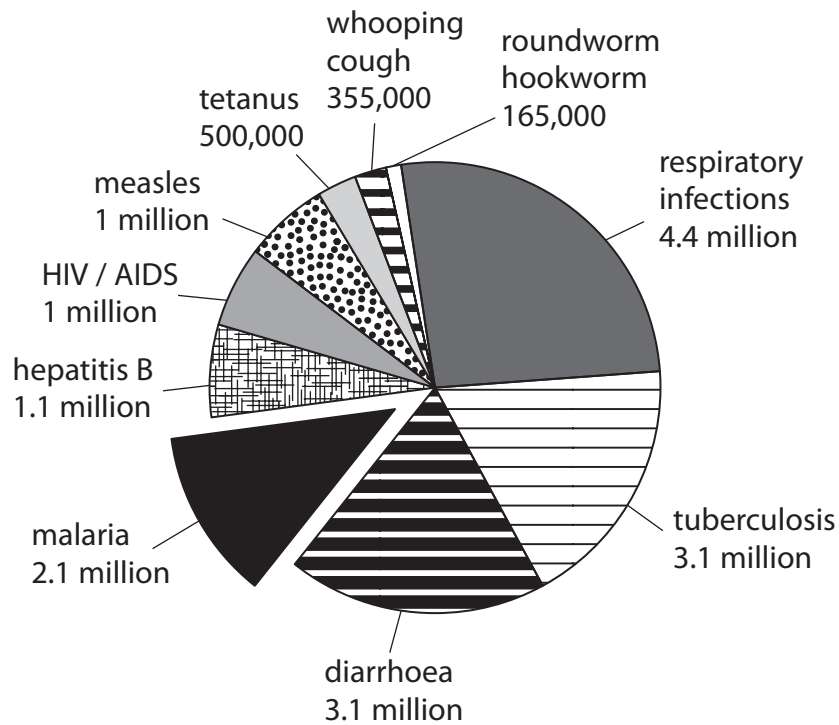
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Disease

- 5 (a) The pie chart shows how many people died worldwide in 2015 from 10 common diseases.



- (i) The total number of deaths from these diseases was 16 820 000.

Calculate the percentage of deaths that were caused by malaria.

(2)

..... %

- (ii) Describe how malaria is spread.

(2)

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Classification

6 (a) (i) The table shows three kingdoms.

Complete the table with a tick (✓) for each feature present in the cells of these kingdoms.

(3)

kingdom	features present		
	nucleus	chlorophyll	cell walls
Animalia			
Fungi			
Plantae			

(ii) Explain why viruses are not classified into a kingdom.

(2)

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(iii) Name the phylum of the kingdom Animalia that contains vertebrates.

(1)

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