



General Certificate of Secondary Education
2017–2018

Centre Number

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Candidate Number

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Science: Single Award

Unit 1 (Biology)
Foundation Tier



[GSS11]

WEDNESDAY 8 NOVEMBER 2017, MORNING

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Write your answers in the spaces provided in this question paper.
Answer **all eight** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 60.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Question **8(b)**.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	

Total Marks	
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1 (a) A simple food chain is shown below.



Lettuce

© andegro4ka / iStock / Thinkstock



Snail

© Tigatelu / iStock / Thinkstock



Crow

© clairevis / iStock / Thinkstock

(i) Name the producer in this food chain.

[1]

(ii) What do the arrows in a food chain show?

[1]

(iii) What is the source of energy for all food chains?

[1]

(b) Green plants make food (glucose) during photosynthesis. Complete the word equation for photosynthesis.

Choose from:

protein

water

oxygen

calcium

carbon dioxide +

→ glucose +

[2]

Examiner Only

Marks

Remark

- 2 (a) The photographs below show foods which can be eaten as part of a balanced diet.



Cheese

© David Munns / Science Photo Library



Red meat

© David Munns / Science Photo Library



Apple

© NaokiKim / iStock / Thinkstock

- (i) Which **one** of these foods is a good source of calcium?

_____ [1]

- (ii) Give **one** function of calcium in the body.

Circle the correct answer.

makes red blood cells

strengthens bones and teeth

prevents scurvy

[1]

Examiner Only	
Marks	Remark

- (b) The photograph below shows a piece of potato being tested with iodine.



© Science Photo Library

- (i) What food group is the iodine testing for?

Choose from:

protein

starch

fat

[1]

- (ii) Complete the table to show the colour of the iodine before and after testing the potato.

Choose from:

blue-black : **blue** : **yellow-brown** : **purple**

Colour of iodine	
Before	After

[2]

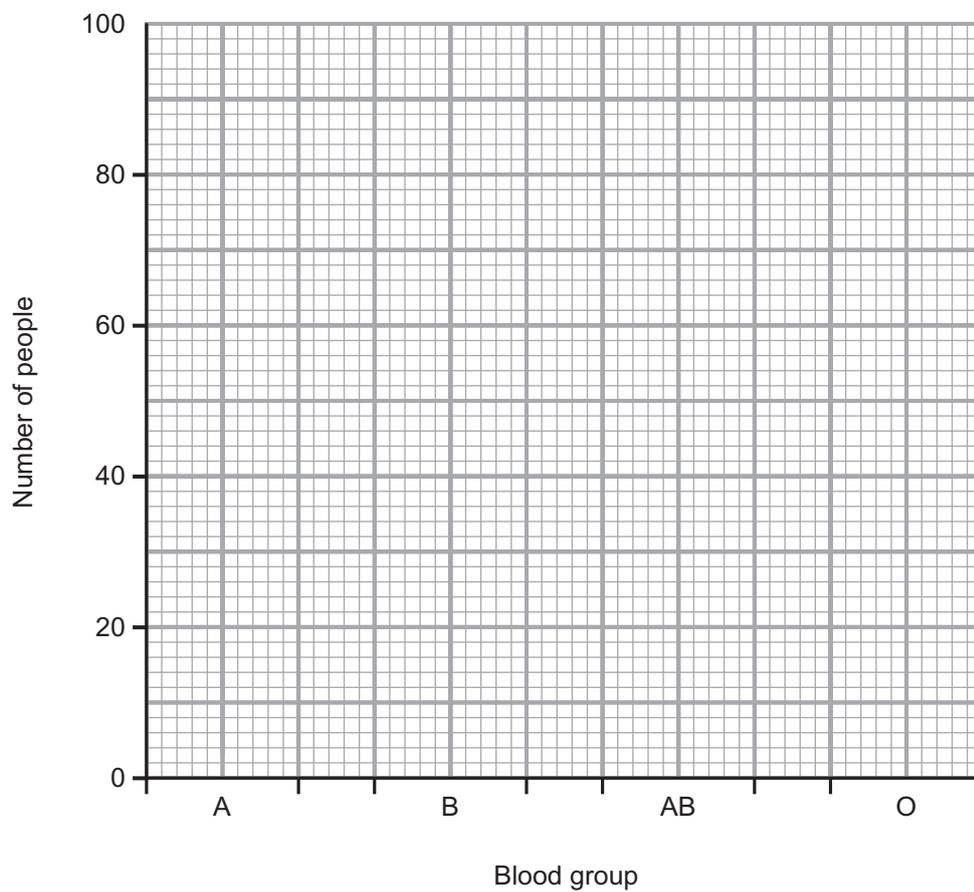
Examiner Only

Marks Remark

- 3 (a) A group of 200 people were tested to find their blood group. The results are shown below.

Blood group	Number of people
A	80
B	20
AB	10
O	90

- (i) Draw a **bar graph** to show these results.



[2]

Examiner Only	
Marks	Remark

(ii) Calculate the percentage of people who are blood group A.

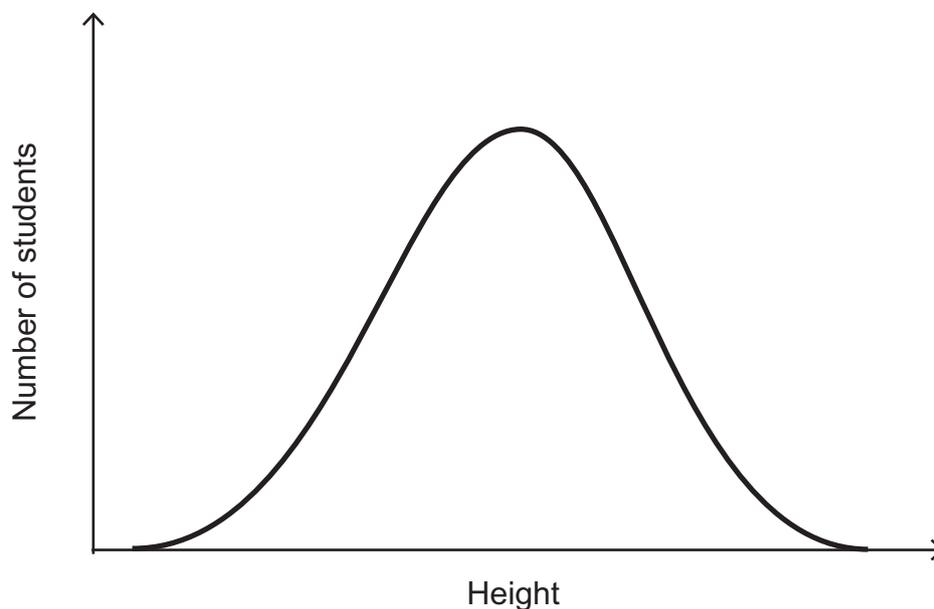
(Show your working out.)

_____ % [2]

(b) Blood groups are an example of discontinuous variation.
Give **one** other example of discontinuous variation.

_____ [1]

The graph below shows how height varies in students in a class.



(c) What evidence from the graph shows that height is an example of continuous variation?

_____ [1]

Examiner Only	
Marks	Remark

- 4 (a) The table below shows the number of units of alcohol consumed by three people in a week.

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Total
Anne	0	0	0	0	9	0	0	9
Sarah	1	1	1	1	2	2	2	
Jill	0	0	0	0	2	2	0	4

- (i) Complete the table by calculating the total number of units of alcohol for Sarah. [1]

- (ii) What is meant by the term 'binge drinking'?

_____ [1]

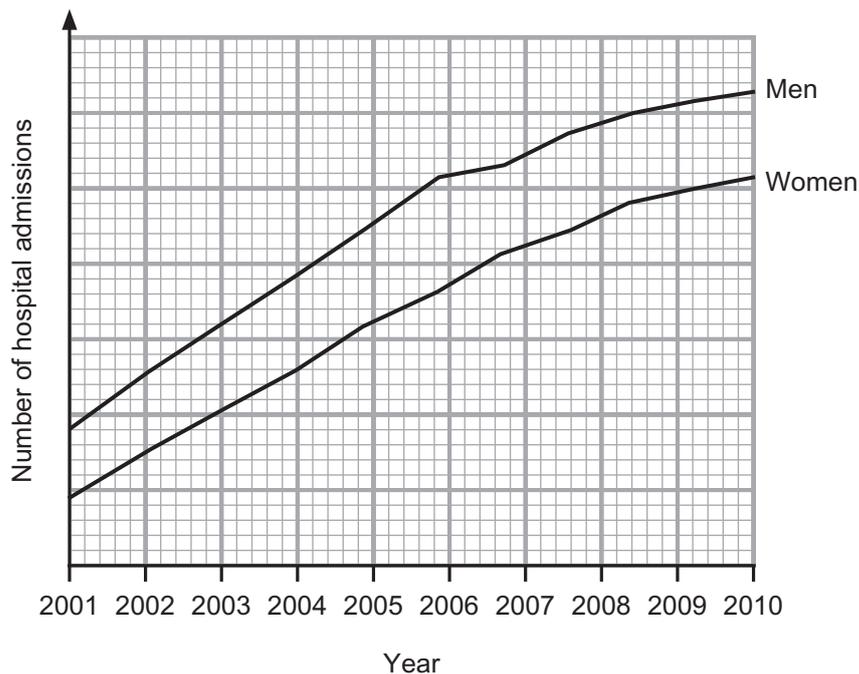
- (iii) Using the information given, name the person who was binge drinking.

_____ [1]

Examiner Only

Marks Remark

- (b) The graph below shows the number of people over the age of 65 who were admitted to a UK hospital with an alcohol-related illness over a 10 year period.



- (i) Give **two** conclusions that can be drawn from this graph.

1. _____

2. _____
 _____ [2]

- (ii) Wernicke Korsakoff Syndrome (WKS) is a form of brain damage caused by alcohol abuse. Suggest how the number of people with WKS would have changed from 2001 to 2010.

_____ [1]

- (iii) Give **two** harmful effects that alcohol abuse can have on society.

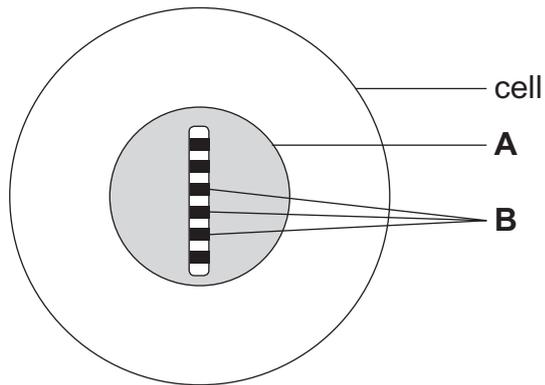
1. _____
 2. _____ [2]

- (iv) Apart from stopping drinking alcohol, suggest **one** way in which a person can reduce his or her alcohol intake.

_____ [1]

Examiner Only	
Marks	Remark

- 5 (a) The diagram below shows an outline of an animal cell. Only one chromosome is shown.



- (i) Name the structure labelled **A**.

[1]

- (ii) Name the parts of the chromosome labelled **B**.

[1]

Chromosomes are made of DNA. A section of DNA is shown below.



© Marc Phares / Science Photo Library

- (iii) Give the term that describes the structure of DNA.

_____ [1]

Examiner Only	
Marks	Remark

(b) Having dimples on our cheeks is an inherited trait. The allele for having dimples (D) is dominant over the allele for not having dimples (d).

(i) Complete the Punnett square below to show how two parents with dimples can have a child without dimples.

Use D = has dimples
d = does not have dimples

	D	
		Dd
d		

[2]

(ii) Give the genotype of the child without dimples.

[1]

(iii) From your Punnett square, what is the probability of these parents having a child with dimples?

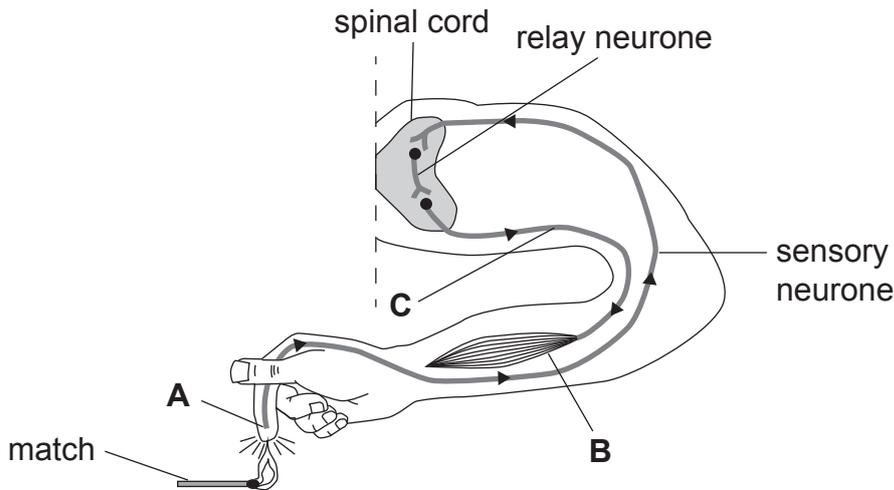
[1]

(iv) What is meant by the term 'homozygous'?

_____ [1]

Examiner Only	
Marks	Remark

6 (a) The diagram shows the path of a nerve impulse along the nervous system.



© Chief Examiner

(i) Which part (A, B, C) in the nervous system is the:

receptor? _____

effector? _____

[2]

(ii) The action shown above is an example of a reflex action. Our nervous system also carries out voluntary actions. Give **one** example of a voluntary action.

_____ [1]

(iii) Give **two** differences between reflex and voluntary actions.

1. _____

2. _____

_____ [2]

(iv) What is the main function of reflex actions in the body?

_____ [1]

Examiner Only	
Marks	Remark

(b) Our hormonal system also helps coordination within the body. Insulin is a hormone produced in our body.

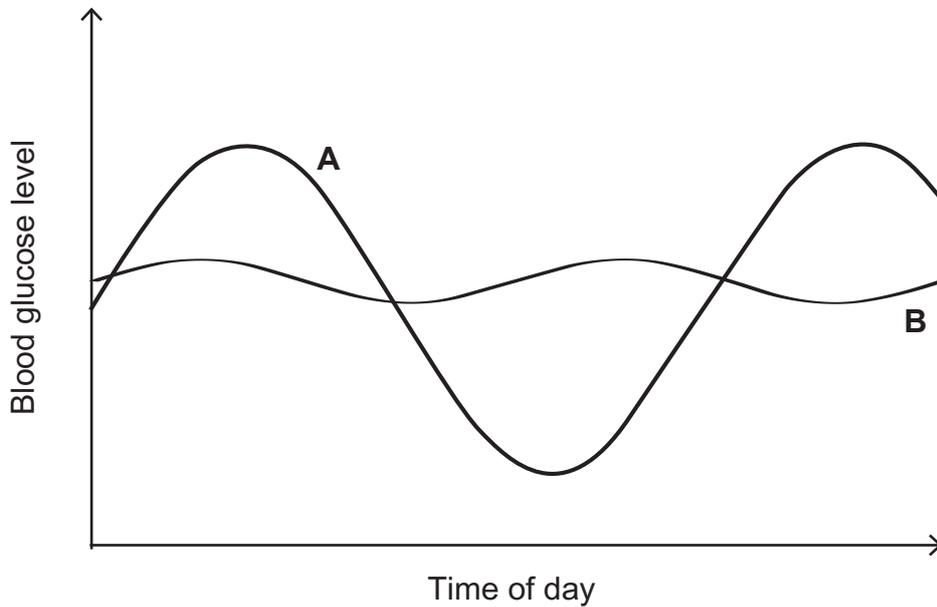
(i) Name the organ that produces insulin.

_____ [1]

(ii) Explain the role of insulin in controlling blood glucose levels in the body.

 _____ [3]

The graph below shows the blood glucose levels of two people (A and B), over a 24 hour period. One has diabetes and the other does not.



(c) Which person (A or B) has diabetes? Explain your answer.

 _____ [1]

Examiner Only	
Marks	Remark

7 (a) Shown below are photographs of the grey and the red squirrel.

Grey squirrel



© Donyanedomam / iStock / Thinkstock

Red squirrel



© Ronant_63 / iStock / Thinkstock

Grey squirrels were brought to Ireland from North America about 150 years ago and their numbers increased quickly.

Grey squirrels destroy woodland by stripping the bark from trees and they outcompete the red squirrels for food. They have a more varied diet and they spend more time on the ground looking for food. They also carry a virus that kills native red squirrels.

- (i) Grey squirrels are an example of a competitive invasive species. Name **one** other competitive invasive species in Ireland.

[1]

- (ii) Using the information given, suggest **two** reasons why the numbers of red squirrels have decreased since the grey squirrels were brought to Ireland.

1. _____

2. _____ [2]

Examiner Only

Marks

Remark

(b) The photograph below shows a pine marten which is a native Irish animal that hunts squirrels on the ground.



© GlobalP / iStock / Thinkstock

Suggest and explain the effect that pine martens will have on the number of **red** squirrels in a woodland.

[3]

Examiner Only	
Marks	Remark

- 8 (a) Twin brothers, Paul and John, are ill and go to their doctor. Paul has a sore throat and John has the flu. The doctor gives Paul antibiotics but does not give any to John.

(i) Explain why John is **not** given antibiotics.

 [2]

(ii) Explain fully why some antibiotics have become less effective in recent years.

 [2]

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Marks	Remark

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