



Centre Number

71

Candidate Number

General Certificate of Secondary Education
2013–2014

Science: Single Award

Unit 1 (Biology)

Foundation Tier

[GSS11]

ML

MONDAY 24 FEBRUARY 2014, MORNING

TIME

1 hour, plus your additional time allowance.

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 nine** 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 **9(b)**.

For Examiner's
use only

Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	

Total
Marks

1 (a) Complete the table below.

Choose your answers from:

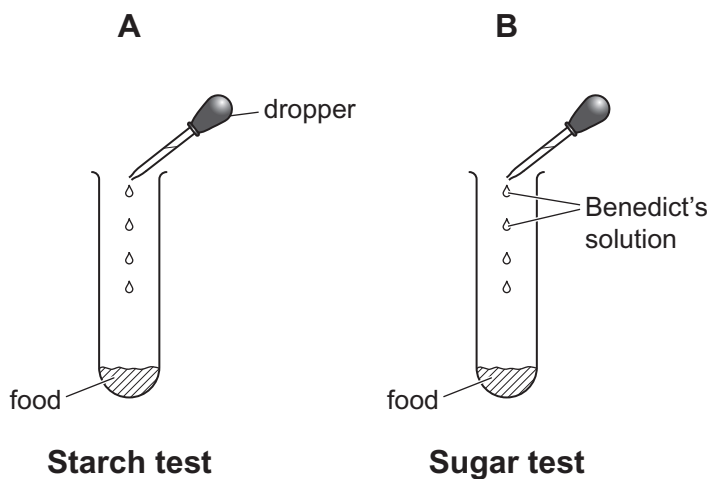
to give us energy : fat : for strong teeth and bones

fibre : protein

Food group	Function in the body
	growth and repair
carbohydrate	
	prevents constipation

[3]

(b) Look at the diagrams below. They show two food tests.



(i) What is the solution used to test for starch in diagram **A**?

_____ [1]

(ii) What colour shows that starch is present in diagram **A**?

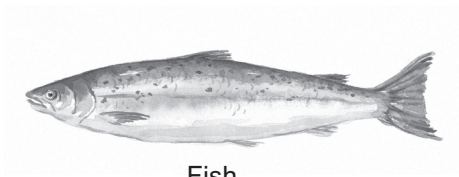
_____ [1]

(iii) An orange-red colour shows that sugar is present in diagram **B**. After the Benedict's solution is added, what must be done to give this colour change?

_____ [1]

Examiner Only	
Marks	Remark

(c) Look at the pictures below. They show foods that are good sources of either vitamin **C** or **D**.



Fish

© Digital Vision / Thinkstock



Eggs

© iStockphoto / Thinkstock



Lemon

© iStockphoto / Thinkstock



Kiwi

© iStockphoto / Thinkstock

(i) Fill in the table to show which of these foods contain each vitamin.

Vitamin	Foods
C	
D	

[2]

(ii) Give **one** function for vitamin **C** in the body.

Put a circle round the correct answer.

strengthens teeth and bones : **prevents scurvy**

good for eyesight

[1]

Examiner Only	
Marks	Remark

- 2 (a) Look at the photograph below. It shows a boy rolling his tongue. People either can or cannot roll their tongue.

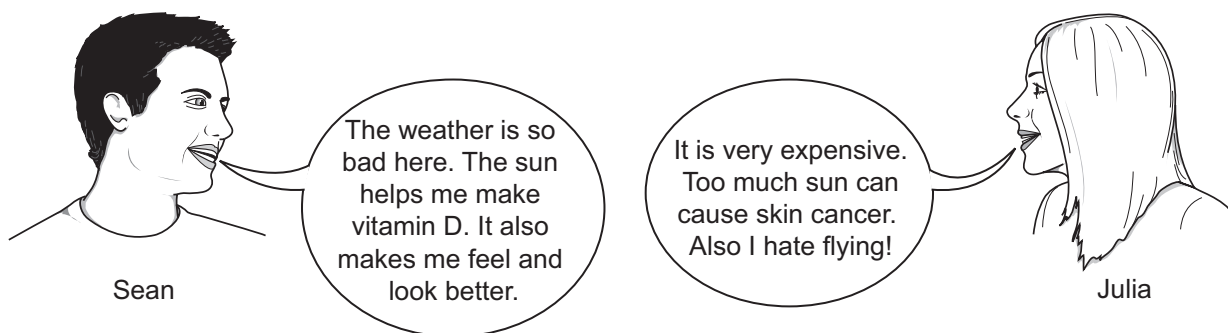


© Cordelia Molloy / Science Photo Library

What is the type of variation that tongue rolling shows?

_____ [1]

- (b) Sean and Julia are discussing if they should go to sunny Majorca for their holiday this year.



Write down one **health** reason for, and one **health** reason against, Sean and Julia going to Majorca for their holidays. Only use the information Sean and Julia have given.

For _____

Against _____ [2]

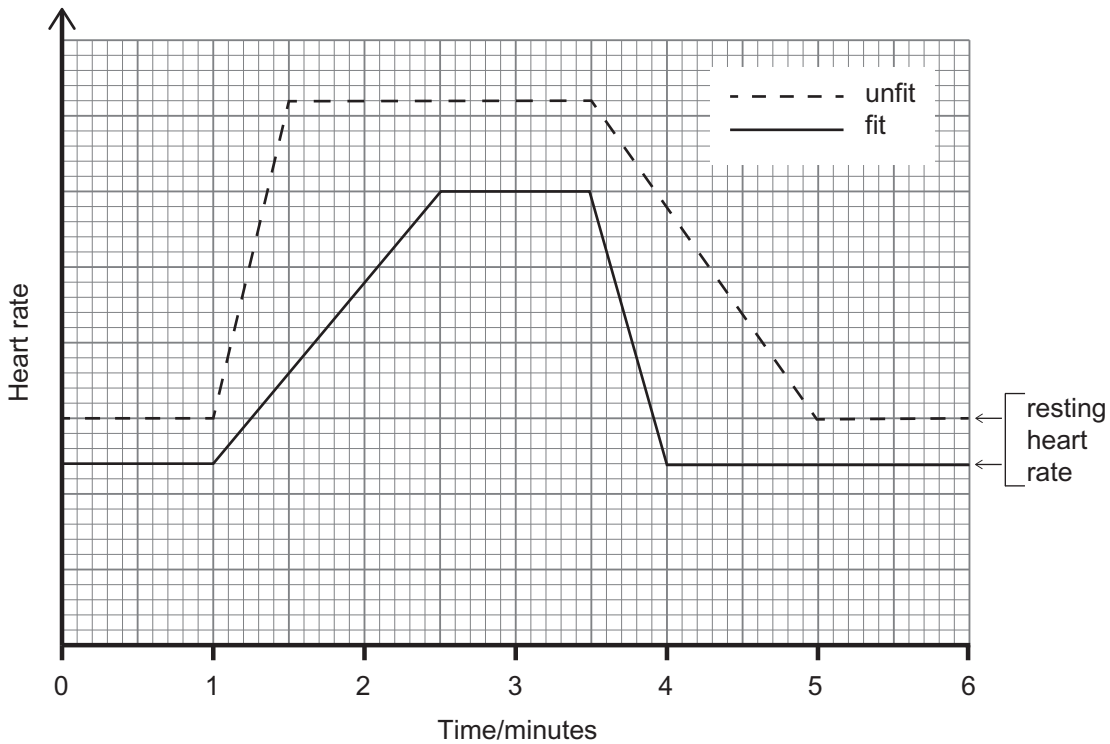
Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

BLANK PAGE
(Questions continue overleaf)

3 Look at the graph below. It shows how exercise affects the heart rate of a student who is fit and a student who is unfit.

Examiner Only	
Marks	Remark



(a) Use the graph to answer parts (i) and (ii).

(i) At what time did the students start to exercise?

_____ minute(s) [1]

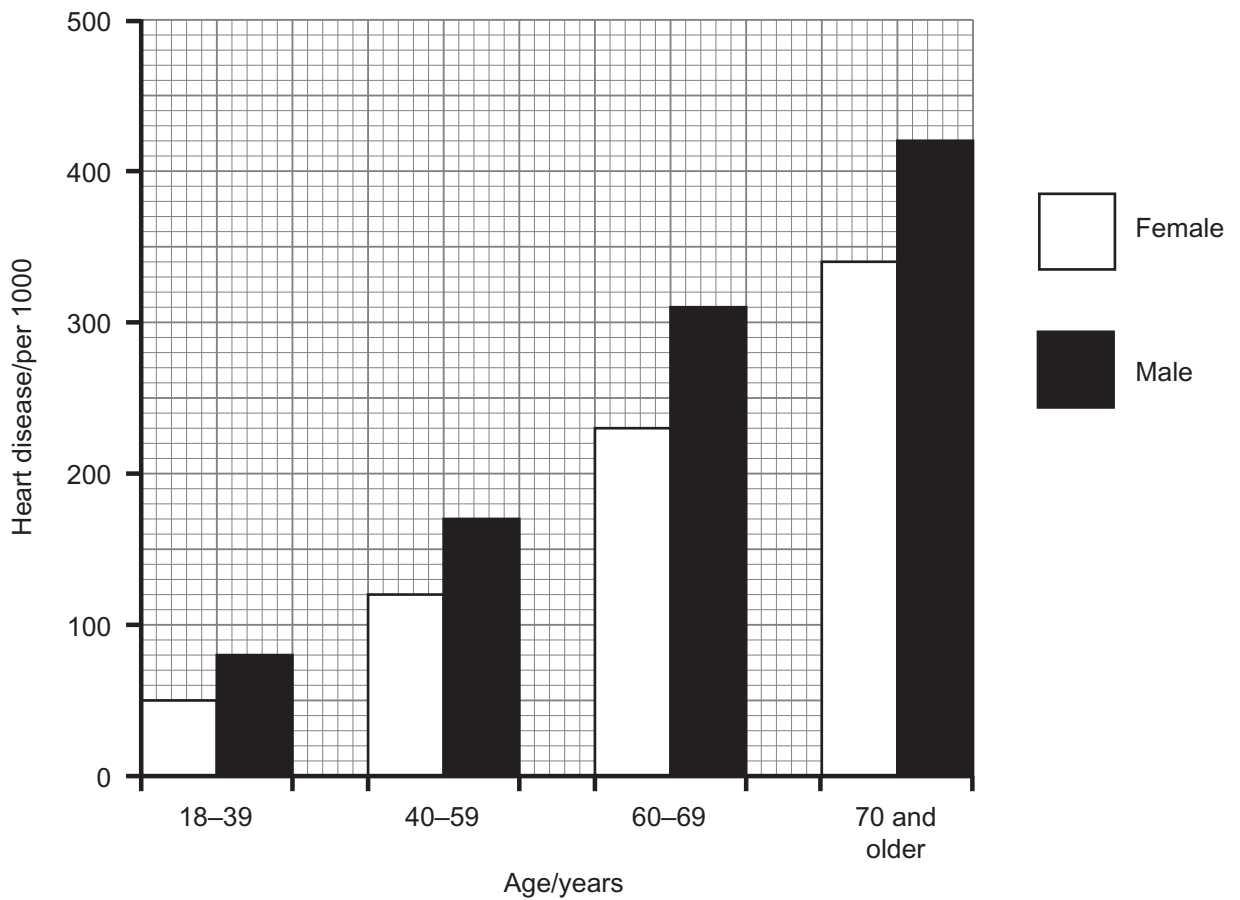
(ii) Write down **two** differences between the heart rates of the fit student and the unfit student.

1. _____

2. _____

_____ [2]

(b) Look at the graph below. It shows the results of a survey on heart disease in different age groups.



Write down **two** trends shown by the information in the graph.

1. _____

2. _____
_____ [2]

(c) Write down **two** reasons why the treatment of heart disease is very expensive.

1. _____

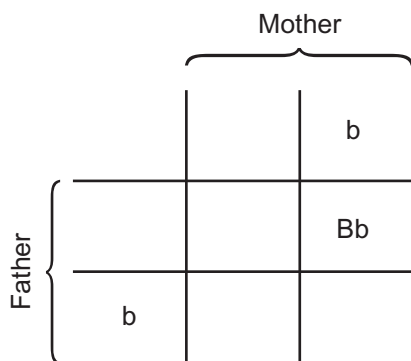
2. _____
_____ [2]

Examiner Only	
Marks	Remark

4 (a) A person's eye colour is inherited from his/her parents.

A **mother** with the genotype (**bb**) has blue eyes and a **father** with the genotype (**Bb**) has brown eyes. Brown (B) is dominant to blue (b).

(i) Complete the Punnett square below to show the gametes of the parents and the genotypes of the children.



[2]

(ii) What percentage of the children may have brown eyes?

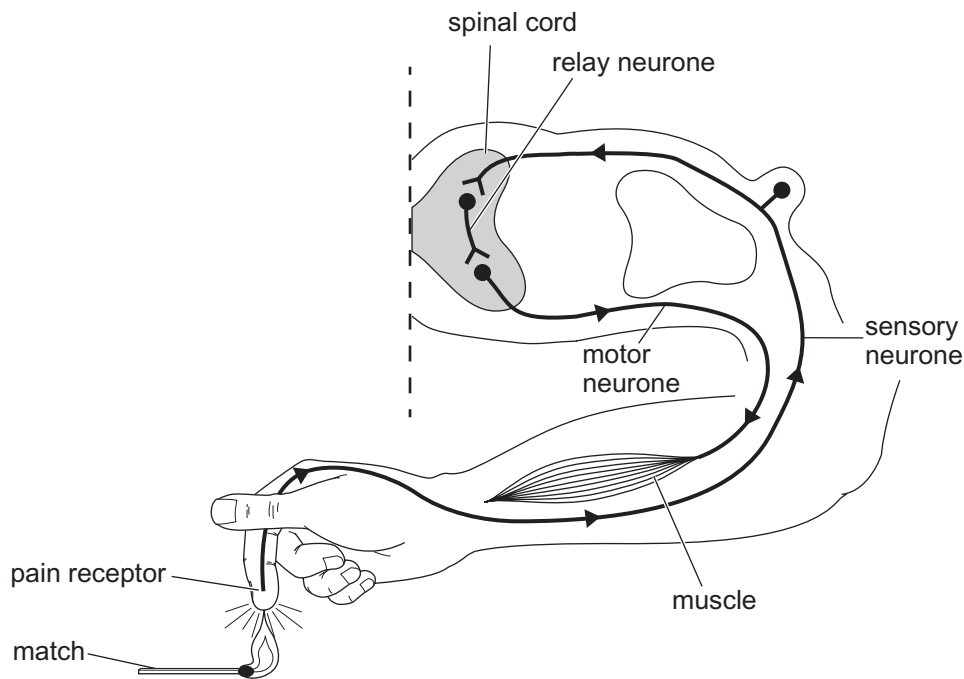
Choose from the numbers below.

25 **50** **75** **100**

_____ % [1]

Examiner Only	
Marks	Remark

- 5 (a) Reflex actions are very quick. For example, you pull your hand away from a hot flame without thinking.



Look at the list below. It gives the steps in a reflex action but **not** in the correct order.

- A Sensory neurone carries nerve impulse to the spinal cord
- B Muscle bends arm
- C Pain receptor in finger feels heat
- D Relay neurone carries impulse from sensory to motor neurone
- E Motor neurone carries impulse to muscle

- (i) Use the letters **A**, **B**, **C**, **D** and **E** to put the steps in the correct order. The first one has been done for you.

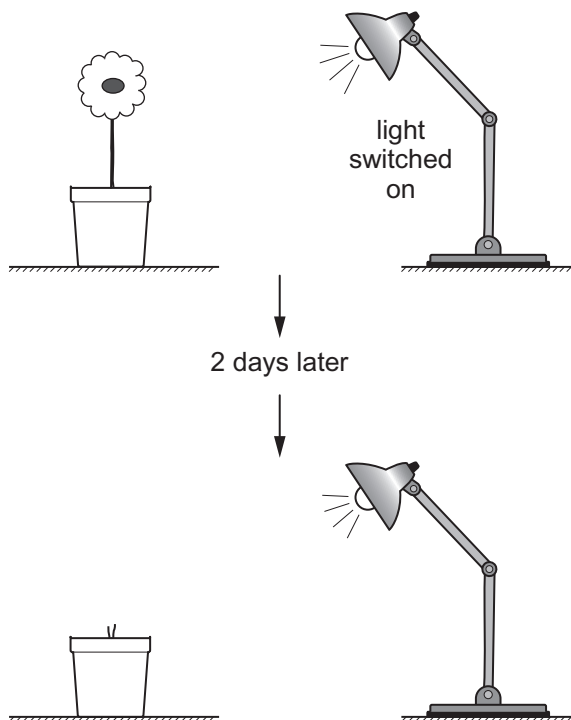
 C → _____ → _____ → _____ → _____ [2]

- (ii) Why is the nerve impulse carried to the spinal cord but **not** the brain?

_____ [1]

Examiner Only	
Marks	Remark

(b) Look at the diagram below. It shows a plant growing in bright light.



(i) Complete the diagram to show how this plant has responded to light after 2 days. [1]

(ii) What name is given to the plant's response to light?

[1]

(iii) What controls this response in plants?

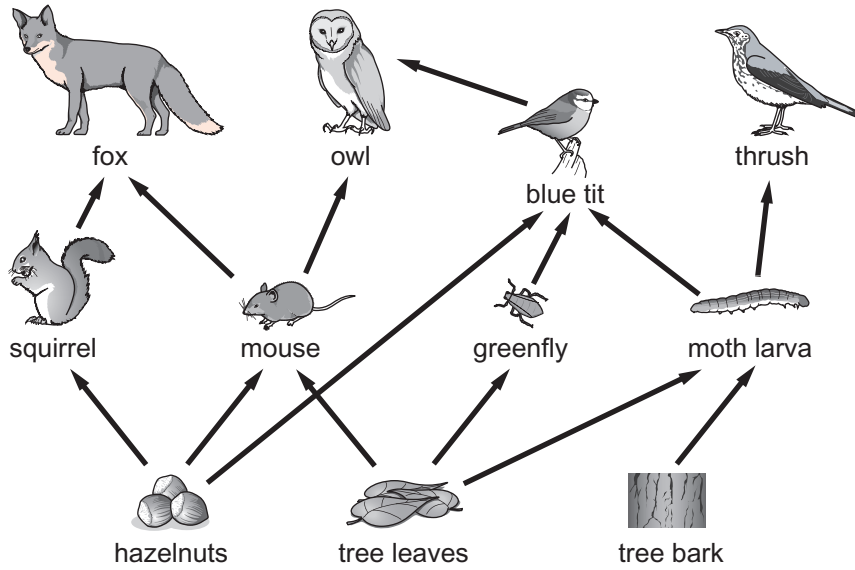
Choose from:

carbon dioxide : water : hormones

_____ [1]

Examiner Only	
Marks	Remark

6 (a) Look at the diagram below. It shows a food web.



© KS3 science revision Level 5-7 by Patricia Millar, published by HarperCollins, 2006. Reprinted by permission of HarperCollins Publishers Ltd

(i) Use the diagram to complete a food chain containing **four** organisms in the boxes below.

→ → →

[2]

(ii) What is the name of **one** primary consumer from this food web?

[1]

(b) Write down what might happen to the number of squirrels if the fox numbers go down. Explain your answer.

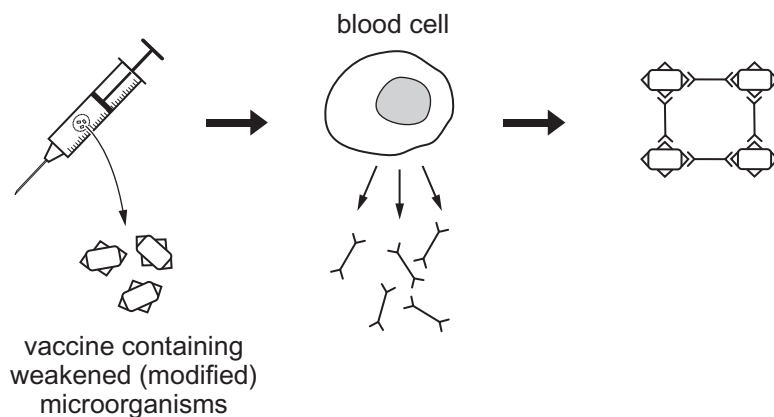
_____ [2]

Examiner Only	
Marks	Remark

--	--

BLANK PAGE
(Questions continue overleaf)

7 Look at the diagram below. It summarises how a vaccine works.



(a) Use the diagram and your knowledge to describe how vaccinations protect against disease.

[3]

(b) Before a vaccination is licensed for use it goes through a number of trials (in vitro, animal and clinical).

(i) Clinical trials test the drug on human volunteers. Write down **two** reasons why it is necessary to carry out testing on humans.

1. _____

2. _____

[2]

(ii) Write down **one** reason why many people are against testing on animals.

[1]

Examiner Only	
Marks	Remark

Look at the table below. It shows information about the development and production of different drugs by a company.

	Antibiotics	Painkillers	Other medical drugs
Cost of producing drug/million pounds	7.4	7.5	4.9
Time to produce drug/years	9.5	6.5	6.5
Profit per drug/million pounds	2.1	2.9	4.2
Number of drugs in development	2	4	7

(c) Use the information provided to suggest **two** reasons why this company is more interested in developing 'other medical drugs' rather than antibiotics and painkillers.

1. _____

2. _____

_____ [2]

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

_____ [2]

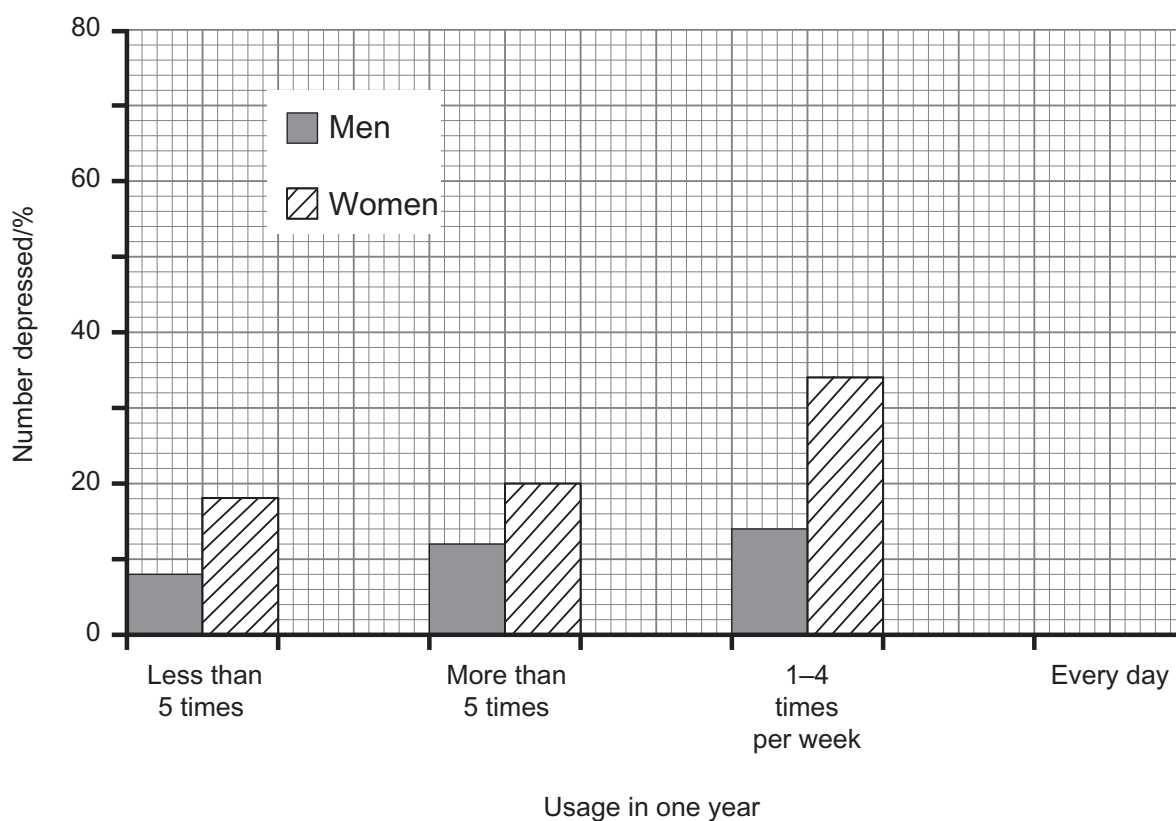
Examiner Only	
Marks	Remark

- 8 Cannabis is the most widely used illegal drug in Britain. Some doctors think that taking cannabis can lead to depression.

Doctors investigated the use of cannabis by 800 males and 800 females. The results are shown in the table below.

Usage in one year	Men who became depressed/%	Women who became depressed/%
Less than 5 times	8	18
More than 5 times	12	20
1–4 times per week	14	34
Every day	20	67

- (a) Use the information in the table to complete the bar chart below.



[1]

Examiner Only	
Marks	Remark

Sources:

Fish_dv302166_Digital Vision_Thinkstock.com

Eggs_95698188_iStockphoto_Thinkstock.com

Lemon_155853998_iStockphoto_Thinkstock.com

Kiwi_153679007_iStockphoto_Thinkstock.com

Permission to reproduce all copyright material has been applied for.

In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA will be happy to rectify any omissions of acknowledgement in future if notified.