



Rewarding Learning

General Certificate of Secondary Education
2009–2010

Centre Number

71	
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Candidate Number

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Science: Single Award (Modular)

Human Activity and Health
Module 2

Foundation Tier

[GSC21]



GSC21

THURSDAY 20 MAY 2010, AFTERNOON

TIME

45 minutes.

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 seven** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 45.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

For Examiner's use only

Question Number	Marks
1	
2	
3	
4	
5	
6	
7	

Total Marks

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- 1 (a) (i) Bacteria and viruses are types of disease-causing microbes. Using lines, link each type of microbe to a disease it causes. One disease will not be used.

Type of microbe

Disease

Bacteria	Thrush	
Virus	Salmonella (food poisoning)	
	Flu	[2]

- (ii) Name the other **type** of microbe that can cause disease.

_____ [1]

- (b) Complete the following sentences.

Choose from:

viruses : bacteria : penicillin : paracetamol

The first antibiotic to be discovered was called _____.

Antibiotics are only effective against _____ . [2]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

2 (a) When the numbers of a living organism fall to very low levels, the species can be at risk of extinction.

(i) What word describes a species that is at risk of extinction?

Choose from:

dodo **endangered** **competitive**

_____ [1]

(ii) Many types of edible fish, such as cod, are at risk of extinction. Name the species mainly responsible for the fall in fish numbers. **Circle** your answer.

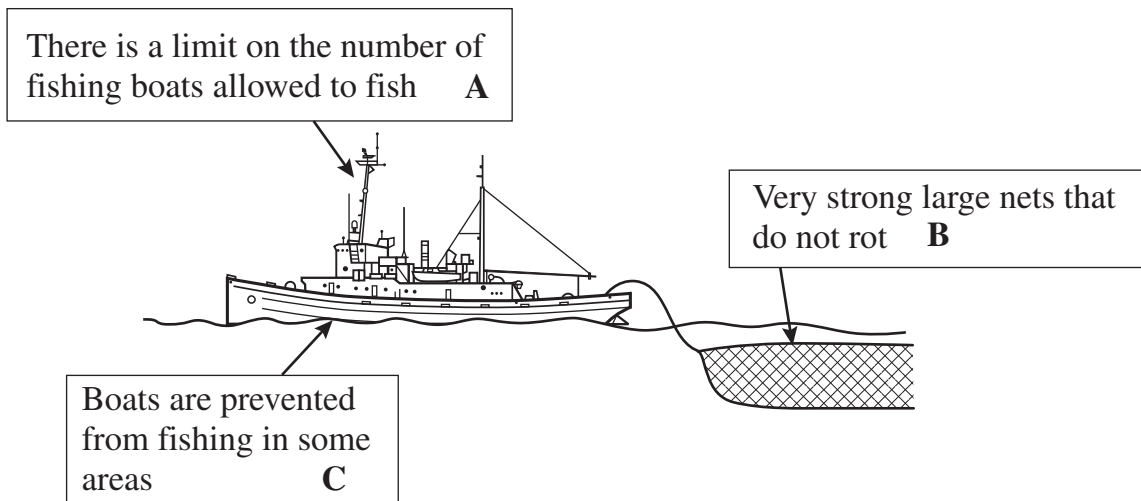
sharks

humans

whales

[1]

(b) The diagram below shows some features of modern fishing.



(i) Which feature shown in the diagram (**A**, **B** or **C**) will **not** help conserve fish stocks?

_____ [1]

(ii) Give **two** things that can be done to help conserve fish stocks.

Choose from:

Better radar on modern boats

Nets with large mesh sizes

Reduce the number of fishing days

Nets with small mesh sizes

1. _____
2. _____ [2]

(c) Red squirrels are at risk of becoming extinct in Ireland.



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Give **one** thing that can be done to increase their numbers.

Circle your answer.

Remove pollution from rivers

Reduce the number of grey squirrels

Remove rhododendron plants

[1]

Examiner Only

Marks

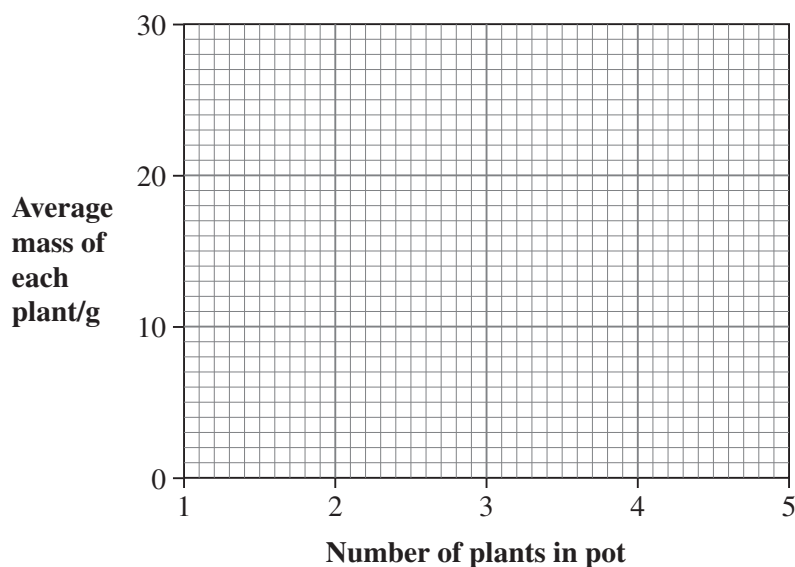
Remark

- 3 Jane carried out an investigation to check if the number of plants in a pot affected the growth of each plant.

She got the following results.

Number of plants in the pot	Average mass of each plant/g	Number of leaves	Number of roots
1	27	5	4
2	18	5	4
3	12	4	4
4	9	3	4
5	7	2	4

- (a) On the grid below, plot a **line graph** for the average mass of each plant against the number of plants in the pot.



[2]

- (b) Use the results and your knowledge to complete the following sentences.

As the number of plants in the pot increases, the average mass of each plant _____ . This is because they are competing for resources such as nutrients, space and _____ .

The results show that one thing **not** affected by increasing the number of plants in the pot is the number of _____ on the plant.

[3]

Examiner Only	
Marks	Remark

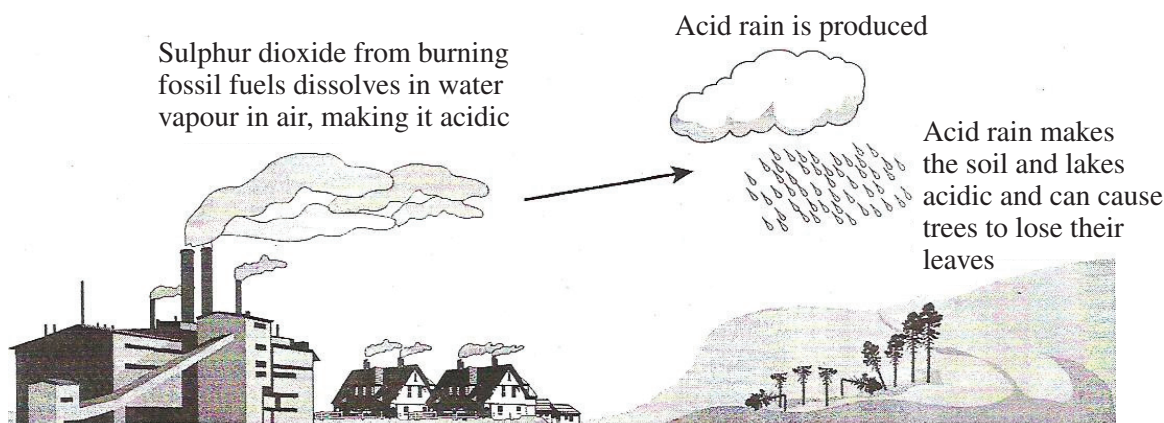
(c) Give **two** things that Jane would have done during her investigation to make sure that her results were valid (a fair test).

1. _____
2. _____ [2]

(d) Suggest what would have happened if Jane had tried to plant 20 plants in the pot.

_____ [1]

4 (a) The following diagram shows how acid rain occurs.



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ISBN 0340 926007 'Reproduced with permission'

(i) Use the diagram and your knowledge to explain why fish are affected by this type of pollution.

_____ [1]

The amount of pollution caused by acid rain has been much reduced in recent years.

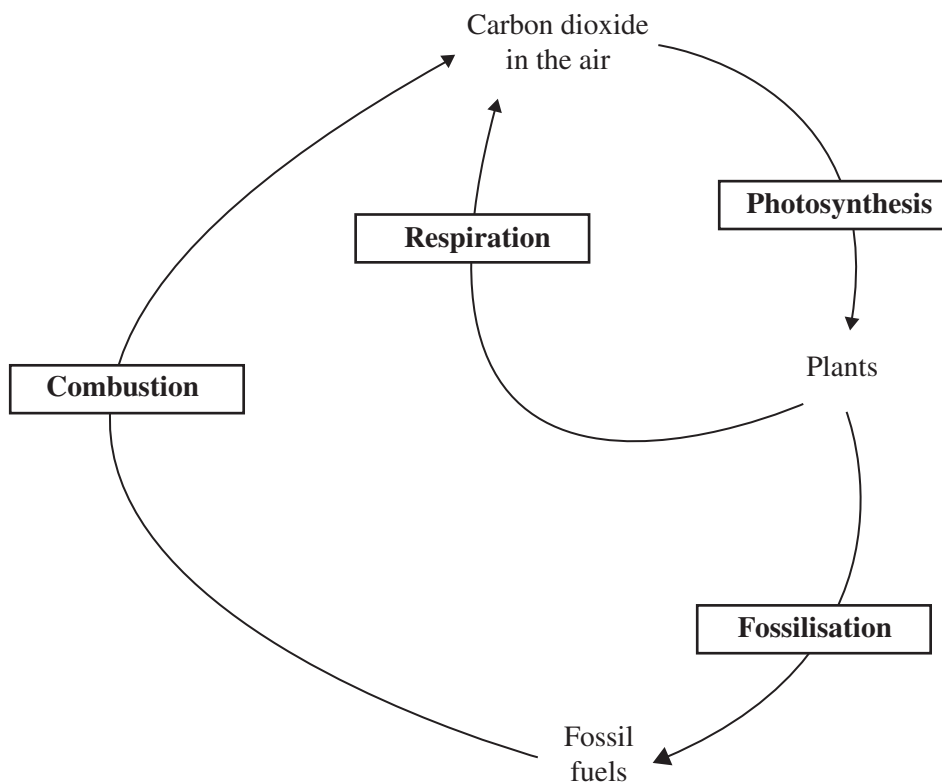
(ii) Suggest **one** way in which the amount of acid rain has been reduced.

_____ [1]

Examiner Only

Marks Remark

(b) Air pollution is also caused by carbon dioxide. The following diagram shows part of the carbon cycle. Processes are shown in boxes.



(i) Name the **process** that has caused a rapid increase in the levels of atmospheric carbon dioxide in recent years.

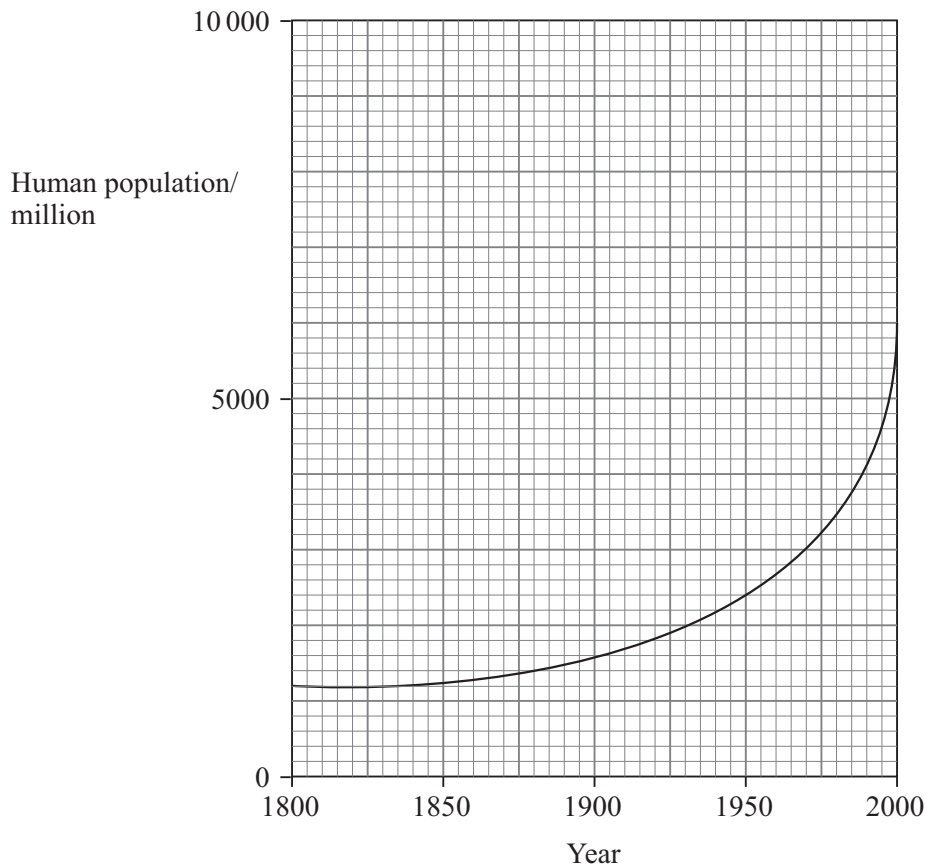
_____ [1]

(ii) It is thought that the increasing levels of carbon dioxide are causing global warming. Describe and explain **one** way in which global warming harms living organisms.

 _____ [2]

Examiner Only	
Marks	Remark

- (c) The growth of the human population also affects the world around us. The graph below shows the increase in human population over the last 200 years.



- (i) Complete the following sentence.

Choose from:

steady rising slowing

The rate of increase in the human population is _____ [1]

- (ii) The human population is increasing because people are living longer.

Give **two** reasons why people are living longer.

1. _____

2. _____ [2]

Examiner Only	
Marks	Remark

5 Getting a tan can make people feel good; however, it increases the risk of skin cancer. In recent years the use of tanning studios and more continental holidays has resulted in an increase in the number of cases of skin cancer.

(a) Name the environmental factor that causes skin cancer.

_____ [1]

(b) Mary is going to Spain for two weeks in July. Apart from staying out of the sun, suggest **two** things she could do to reduce the risk of getting skin cancer when she is on holiday.

1. _____

2. _____ [2]

(c) Cancer is caused by change (mutations) to structures in the body's skin cells.

Name the structures that are changed.

_____ [1]

Examiner Only	
Marks	Remark

6 The body has a number of layers of defence against disease.

(a) Complete the table to show how some parts of the body protect against microbes.

Body part	Way in which it helps protect against microbes
Skin	
Mucous membranes	

[2]

(b) Describe what a vaccine is, and explain how it works.

[3]

Examiner Only	
Marks	Remark

- 7 (a) Smoking tobacco, drinking alcohol and the misuse of drugs causes harm to people and society. The following table compares the effects of these substances on individuals.

Key Most effect = 3
Least effect = 1

Substance	Can cause mental health problems	Can cause road traffic accidents	Can cause cancer
Tobacco	1	1	3
Alcohol	3	3	2
Cannabis	2	2	1

- (i) Tobacco and alcohol can legally be used by adults, but cannabis remains an illegal drug. Use the information in the table to explain how campaigners could suggest that taking cannabis should be made legal.

_____ [2]

- (ii) Suggest why it is illegal for children to purchase cigarettes and alcohol, but legal for adults.

_____ [1]

- (iii) Name the substance in tobacco smoke that:

1. is addictive _____ [1]

2. causes cancer _____ [1]

Examiner Only

Marks Remark

- (b) The following table shows the pattern of drinking of three teenagers over a seven day period. The values show the number of alcoholic units taken.

	Mon	Tue	Wed	Thurs	Fri	Sat	Sun	Total
John	1	2	3	2	2	2	0	
Tony	0	0	2	0	0	8	0	
Paul	0	0	0	0	2	2	0	

- (i) Complete the table to show the total number of units each teenager had taken during the week. [1]

- (ii) Name the teenager who was binge drinking.

_____ [1]

- (iii) Suggest **two** reasons why the Government recommends that people do not binge drink.

_____ [2]

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Marks	Remark

THIS IS THE END OF THE QUESTION PAPER

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