



Rewarding Learning

General Certificate of Secondary Education  
2012

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]



MONDAY 12 NOVEMBER 2012, 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) Complete the table below about pollution.

Choose from:

**better storage on farms : filters on chimneys :  
wind : smaller oil tankers : land**

Type of pollution	Example	Method to reduce effect
air	acid rain	
	household refuse	recycling
water	slurry run-off (animal waste)	

[3]

(b) Smoking cigarettes can also cause air pollution. Complete the following sentences.

Choose from:

**addiction : water : tar :**

**nitrogen : carbon monoxide : cancer**

Harmful substances in cigarette smoke include \_\_\_\_\_

and \_\_\_\_\_. Nicotine is another harmful substance in

cigarette smoke and it causes \_\_\_\_\_. [3]

Examiner Only	
Marks	Remark

2 (a) Complete the following flow chart.

Choose from:

**beta : genes : water : UV : protein**

Skin cancer is caused by \_\_\_\_\_ rays  
from the Sun burning our skin.



This can damage the \_\_\_\_\_ in  
our skin cells.

[2]

(b) What is cancer?

**Circle** the correct answer.

**controlled cell division**

**uncontrolled growth of cell size**

**uncontrolled cell division**

[1]

Examiner Only	
Marks	Remark

- (c) The following table shows the number of cases of skin cancer being treated in one local hospital over a ten year period.

Year	Number of cases of skin cancer
2000	46
2002	49
2004	54
2006	52
2008	59
2010	63

- (i) Calculate the increase in the number of people treated for skin cancer from the year 2000 to 2010.

\_\_\_\_\_ [1]

- (ii) Suggest **one** reason why the number of cases of skin cancer has increased.

\_\_\_\_\_ [1]

- (d) The NHS has a number of screening programmes to detect cancer in the very early stages.

Suggest **one** reason why skin cancer is more likely to be detected at an earlier stage than lung cancer.

\_\_\_\_\_  
 \_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

3 An experiment investigated how the number of plants in a pot affected their growth. Different numbers of plants were put in each pot containing the same type of compost and given the same amount of water each day.

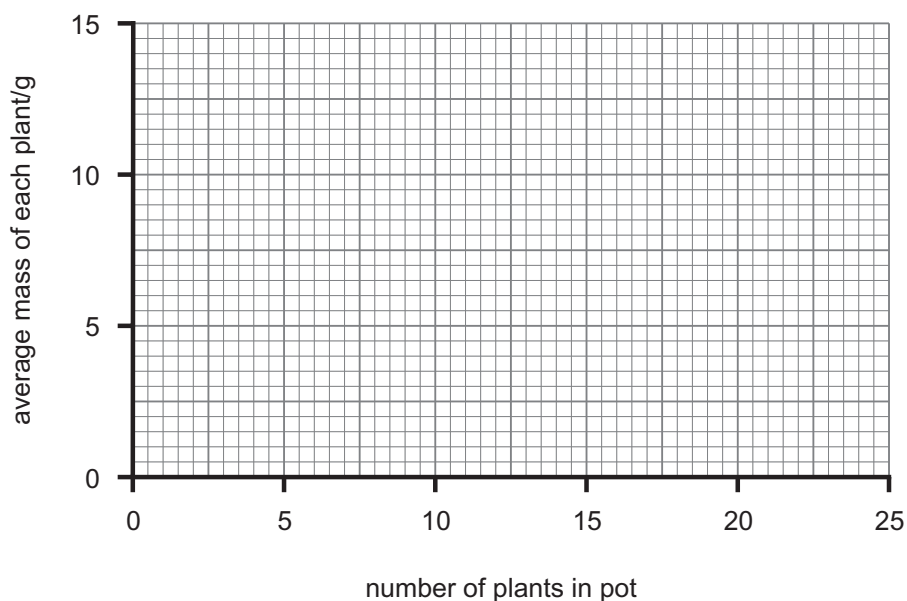
(a) State one **other** thing that must be done to make the results valid (fair test).

\_\_\_\_\_ [1]

(b) The results of the investigation are given below.

Number of plants in pot	Average mass of each plant/g
5	13
10	8
15	6
20	5
25	4

(i) Plot a **line graph** of this information on the grid below.



[2]

**(ii)** Complete the sentence below to describe the trend shown by the results.

As the number of plants in the pot increased the \_\_\_\_\_  
\_\_\_\_\_. [1]

**(iii)** Fully explain the results of this experiment.

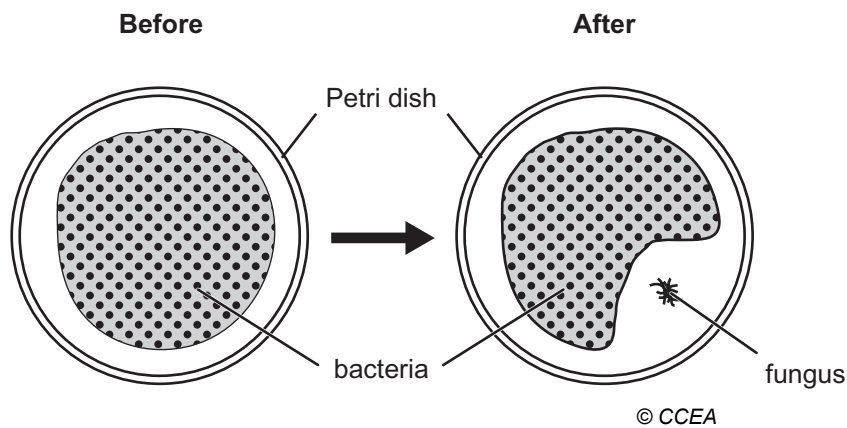
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [2]

**(iv)** Suggest what would happen if there were 50 plants in a pot.

\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

- 4 (a) The following diagram shows what happened when bacteria grown in a Petri dish by Alexander Fleming was contaminated by a fungus.



- (i) Describe the effect fungus had on the bacteria.

\_\_\_\_\_ [1]

- (ii) Name the antibiotic that was eventually produced following this observation.

\_\_\_\_\_ [1]

- (b) Superbugs such as MRSA are difficult to treat because they have become resistant to antibiotics. State **one** way that the spread of MRSA may be reduced in hospitals.

\_\_\_\_\_ [1]

Examiner Only

Marks Remark







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**(Questions continue overleaf)**



(i) Use the graph to explain why a booster is necessary.

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[2]

(ii) Explain why the immunity produced by vaccinations is described as **active** immunity.

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[1]

(iii) Use the graph to give **one** feature of active immunity.

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[1]

Examiner Only	
Marks	Remark

7 (a) The following photograph shows a plantation of willow.



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(i) Give **one** piece of evidence from the photograph that suggests that the willow has been planted by man rather than growing naturally.

\_\_\_\_\_ [1]

Willow grows very rapidly and can be harvested as a biofuel after just three year's growth. Overall the use of willow as a biofuel has little effect on atmospheric levels of carbon dioxide and it is therefore described as being a carbon-neutral fuel.

(ii) Explain fully why the growing of willow as a biofuel is described as being **carbon-neutral**.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [3]

Examiner Only	
Marks	Remark

**(b) (i)** Suggest why the Government encourages farmers to grow willow as a biofuel.

\_\_\_\_\_ [1]

**(ii)** Suggest **one** way the Government does this.

\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

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**THIS IS THE END OF THE QUESTION PAPER**

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