



General Certificate of Secondary Education  
2010–2011

## Science: Single Award (Modular)

Human Activity and Health  
Module 2

Foundation Tier

[GSC21]

THURSDAY 24 FEBRUARY 2011, MORNING

Centre Number

71

Candidate Number



### 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



Examiner Only	
Marks	Remark

1 (a) Cigarette smoke contains substances that have harmful effects on the body. Complete the following table.

Choose from:

**nitrogen : tar : is addictive**  
**causes bronchitis : carbon monoxide**

Substance	Harmful effect
nicotine	
	causes cancer
	lowers the level of oxygen in blood

[3]

(b) (i) Complete the following sentences.

Choose from:

**eyes : liver : binge drinking : a hangover**

Drinking a lot of alcohol in a short period of time

is called \_\_\_\_\_.

People who drink too much alcohol for a long period of time risk

harming their \_\_\_\_\_.

[2]

(ii) Apart from giving up alcohol, suggest two ways to reduce the harm that it can cause to the body.

1. \_\_\_\_\_

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

(iii) State one way that excess drinking of alcohol can harm **society**.

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



3 (a) Below is a picture of a corncrake in tall vegetation where it nests.

Examiner Only

Marks Remark



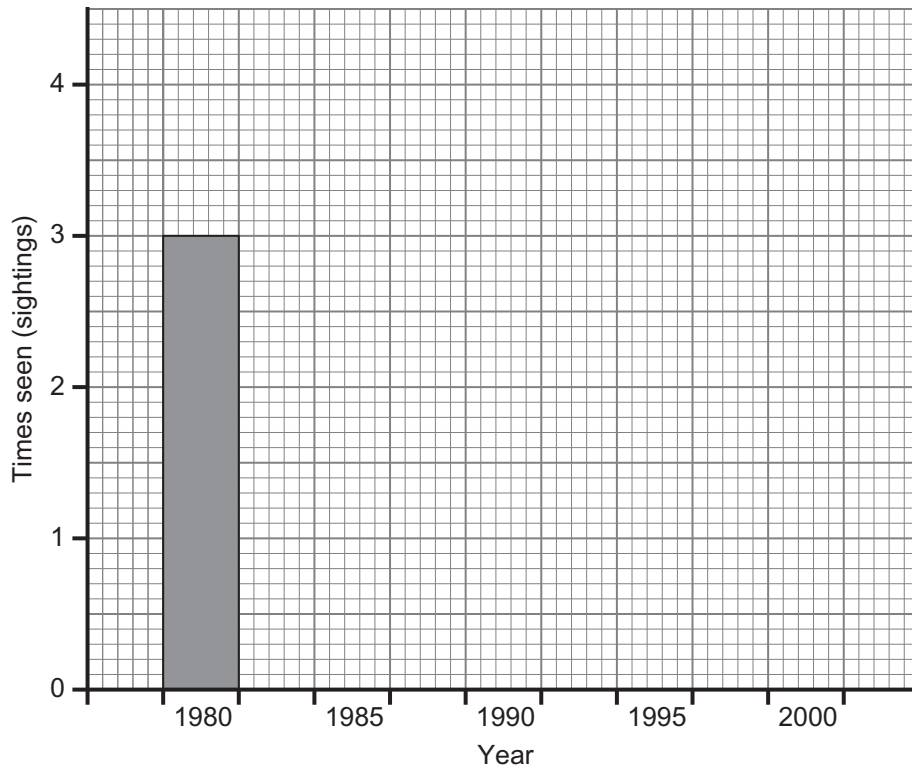
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A farmer noted the following information about corncrakes on his land.

Year	Times seen (sightings)	Times heard (calls)
1980	3	12
1985	2	5
1990	2	6
1995	1	4
2000	1	4

Use the information provided and your knowledge to answer parts (i), (ii) and (iii) below.

(i) Complete the following bar chart showing the number of sightings.



[2]

(ii) Suggest **one** reason why the information shows that there were more corncrake calls than sightings.

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

(iii) Give **one** piece of evidence that suggests that the corncrake is an endangered species.

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

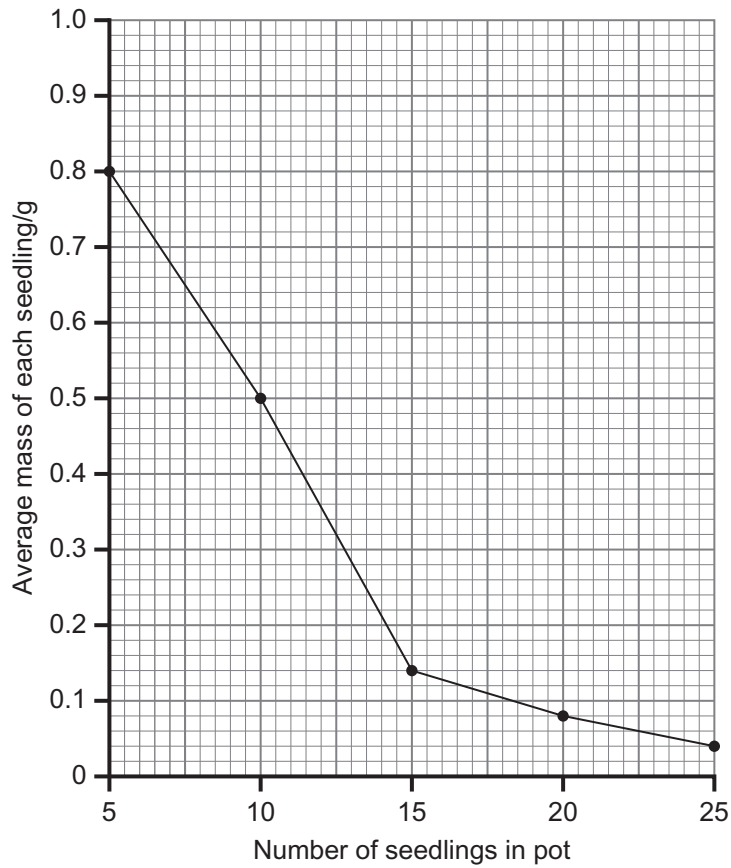
(b) The corncrake is an example of a biotic factor that can be used to give information about the environment.

What is meant by a **biotic** factor?

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

Examiner Only	
Marks	Remark

- 4 (a) Jane was given five identical pots and a packet of seeds. She used these to investigate how the mass of seedlings was affected by the number growing in each pot. She planted the seeds and after three weeks weighed the seedlings. This is a graph of her results.



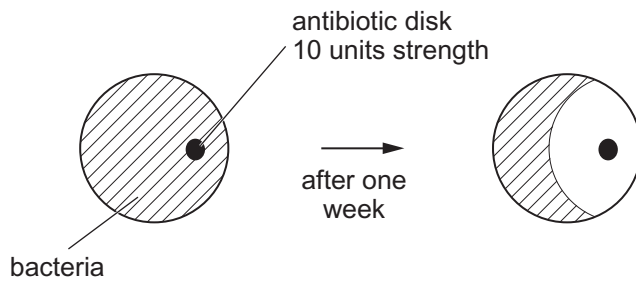
- (i) Calculate the total number of seedlings that Jane used.

Show your working.

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

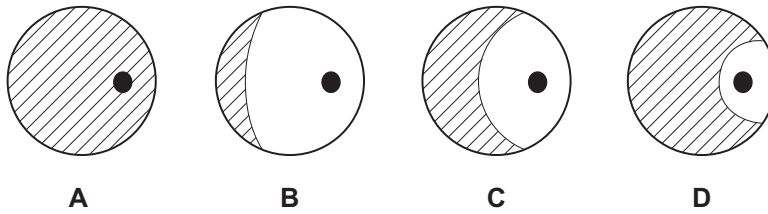


5 (a) The following diagram shows the effect of placing a 10 unit antibiotic disk on a Petri dish containing bacteria.



(i) The experiment was repeated with an antibiotic of 5 units.

Which of the following diagrams would be the expected result?



Answer (A, B, C or D) \_\_\_\_\_ [1]

(ii) Name the antibiotic discovered by the accidental contamination of a Petri dish containing bacteria.

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

(iii) Name **one** disease caused by bacteria.

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

(b) Poor hygiene standards in hospitals can speed up the spread of MRSA.

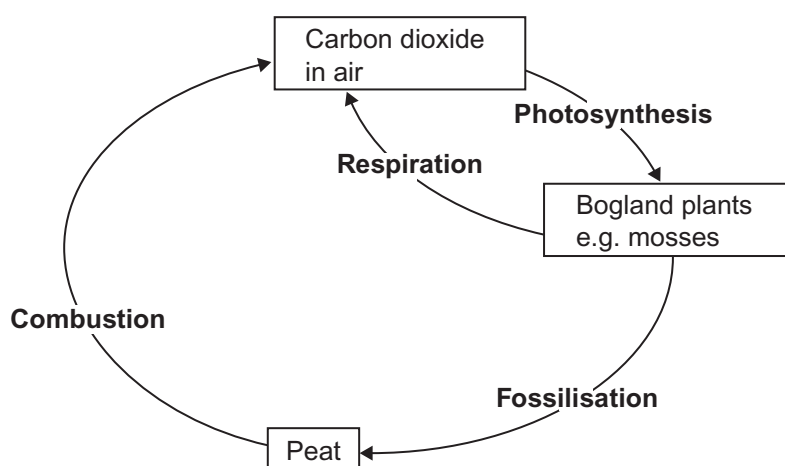
Suggest **one** reason why MRSA is difficult to eliminate from hospitals even when hygiene standards are very high.

\_\_\_\_\_

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



6 The following diagram shows the role peat (a fossil fuel) plays in the carbon cycle.



(a) Name **two** processes in the diagram that return carbon dioxide to the air.

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

(b) Using the diagram and your knowledge explain what causes global warming.

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

Another fuel is the willow plant which grows rapidly and can be harvested after three years.

(c) Use the information provided and your knowledge to explain why using willow, rather than peat, is better for the environment.

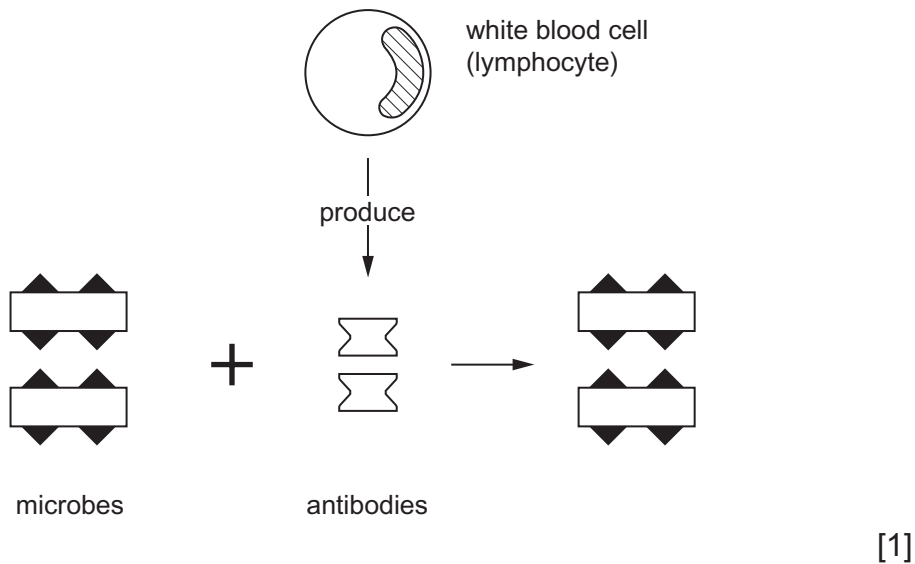
\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ [3]

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Marks	Remark

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Marks	Remark

7 (a) When microbes enter our body some blood cells produce antibodies. The antibodies work by clumping the microbes together and immobilising them. This is called active immunity.

(i) Complete the diagram to show how the antibodies cause the microbes to clump together.



(ii) Name the process by which the clumped microbes are destroyed. [1]

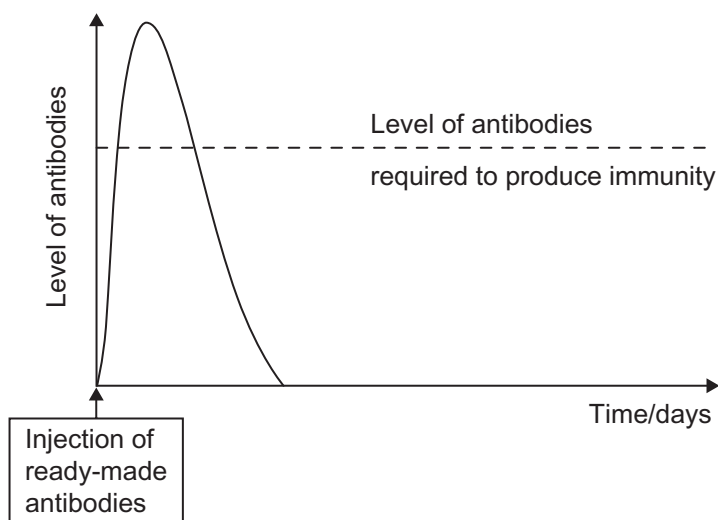
\_\_\_\_\_ [1]

(iii) Suggest why we have different antibodies for each type of disease. [1]

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

**(b)** We can also protect ourselves by having antibodies injected directly into the body. This will give us **passive** immunity.

The following graph shows how the number of antibodies in the blood changes during passive immunity.



Use the graph and your knowledge to describe two ways in which passive immunity differs from active immunity.

1. \_\_\_\_\_
2. \_\_\_\_\_ [2]

**(c)** Many people in Britain have an annual flu vaccination at the start of winter. This is to prevent them catching the flu over the winter season.

Explain fully why a vaccination is used rather than having the antibodies injected directly into the body.

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

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

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Examiner Only	
Marks	Remark

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