



Centre Number

71

Candidate Number

General Certificate of Secondary Education
2011–2012

Science: Single Award (Modular)

Human Activity and Health
Module 2

Foundation Tier

[GSC21]



TUESDAY 15 MAY 2012, MORNING

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) Bacteria and fungi are types of disease-causing microbes. Using lines, link each type of microbe to one disease it causes.

Type of microbe	Disease
Fungi	Flu
Bacteria	Athlete's foot
	Gonorrhoea

[2]

(b) Complete the following sentences.

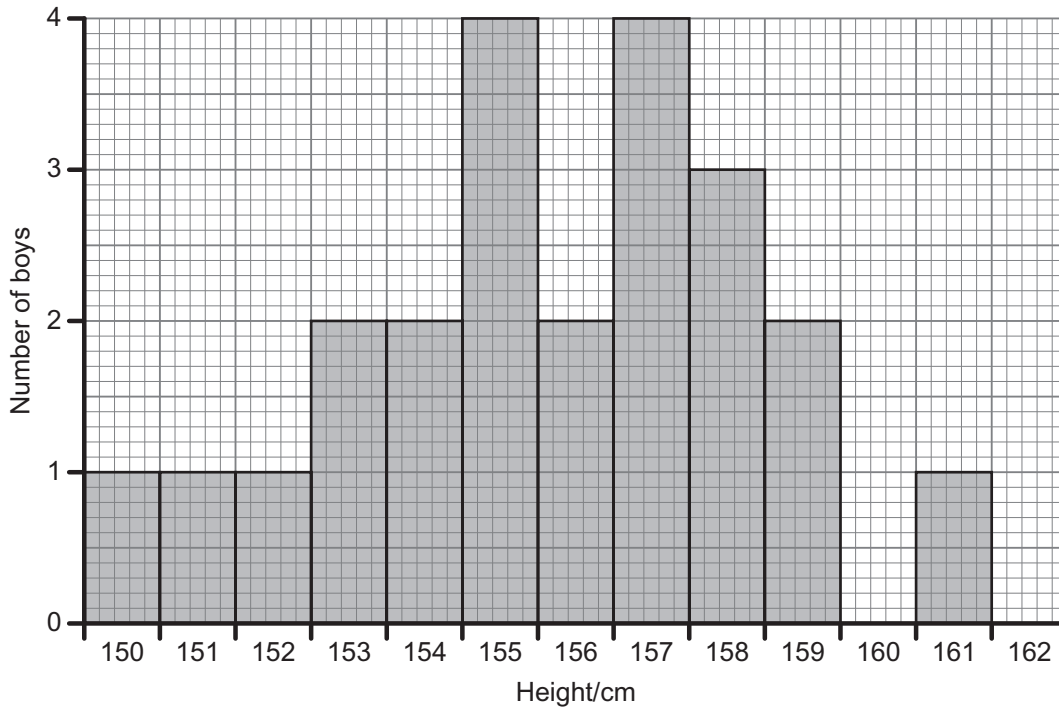
Choose from:

nitrogen : **MRSA** : **lung cancer** :
carbon monoxide : **polio** : **emphysema**

Smoking causes disease and can harm the body. Tar from smoking causes the diseases _____ and _____ . Cigarette smoke also contains the gas _____ which reduces the blood's ability to carry oxygen. [3]

Examiner Only	
Marks	Remark

2 (a) The graph below shows the heights of a class of 13-year-old boys.



(i) How many pupils are in the class?

_____ [1]

(ii) What are the most common heights in the class?

_____ cm and _____ cm [1]

(iii) Height is an example of continuous variation in humans. How can you tell this from the graph?

_____ [1]

(iv) Suggest **one** way in which the results will change if the pupils' heights are measured one year later when they are 14 years old.

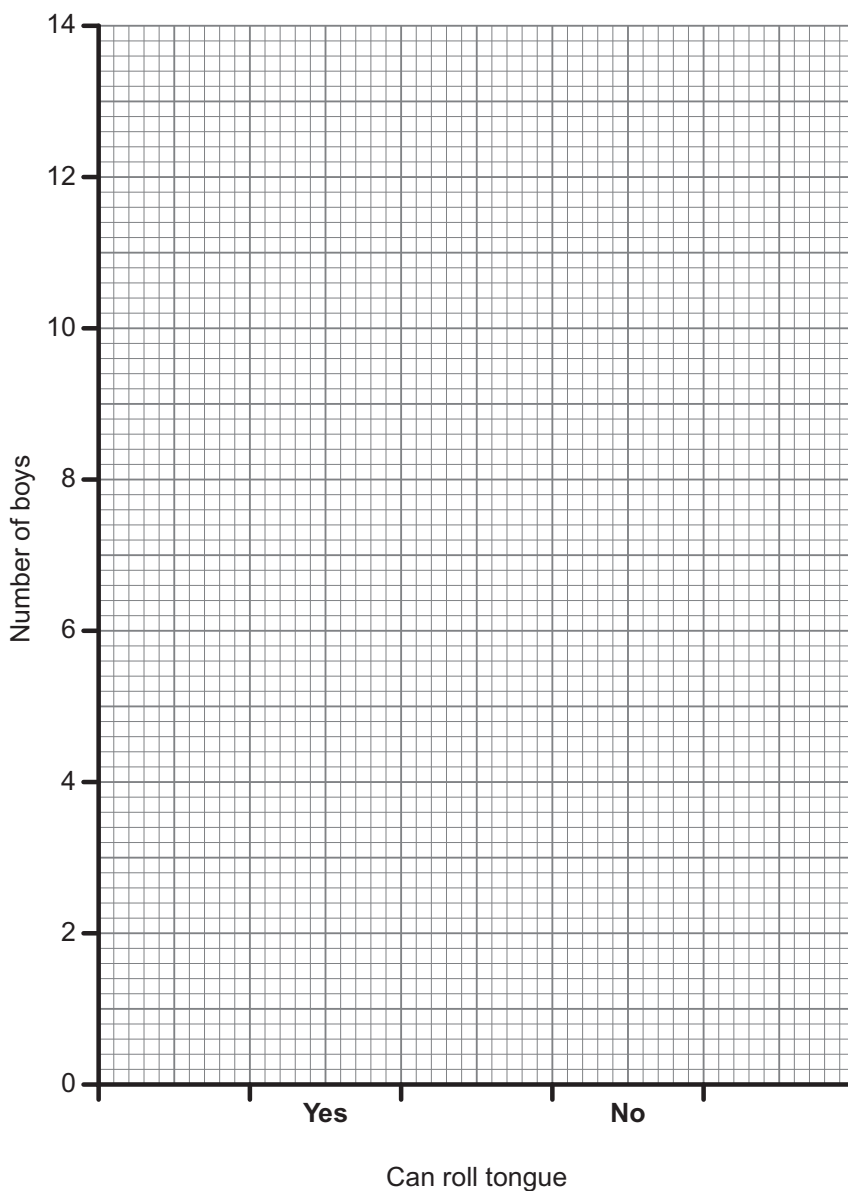
_____ [1]

Examiner Only	
Marks	Remark

(b) The table below gives information about the number of boys in a youth group who could roll their tongues.

Can roll tongue	Yes	No
Number of boys	12	7

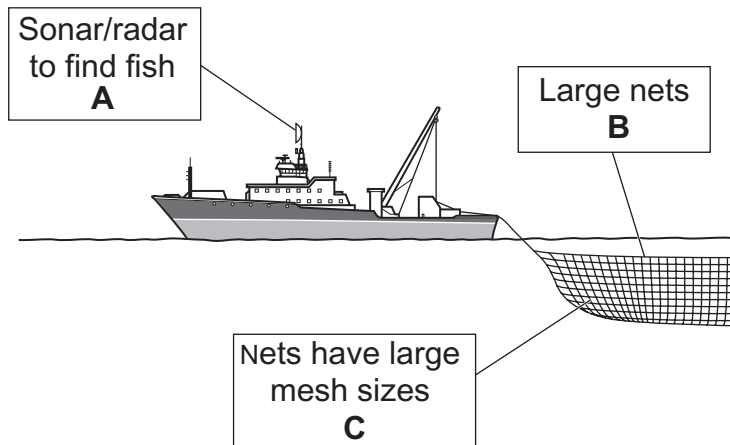
Draw a **bar chart** of this information on the grid below.



[2]

Examiner Only	
Marks	Remark

3 (a) The diagram below shows some features of a modern fishing boat.



(i) Which feature shown in the diagram (**A**, **B** or **C**) will help conserve fish stocks?

_____ [1]

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

Circle the correct answers.

sanctuaries where fishing is not allowed

increasing the number of fishing days

extending the area where boats can fish

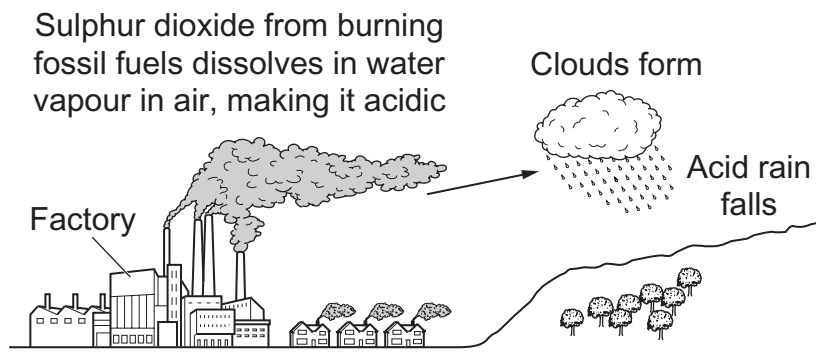
limiting the number of fishing days by each boat [2]

(iii) Fish stocks are also at risk due to pollution. Give **one** type of water pollution that harms fish.

_____ [1]

Examiner Only	
Marks	Remark

- (b) Acid rain is a type of air pollution. The following diagram shows how acid rain occurs.



- (i) Use the diagram and your knowledge to explain how a country that has few factories can be affected by acid rain if it is close to a country that has many factories.

[2]

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

Examiner Only	
Marks	Remark

4 The population of Northern Ireland is rising rapidly, mainly because people are living longer. One reason why people are living longer is due to better medical care.

(a) Give **one** other reason why people are living longer.

Circle the correct answer.

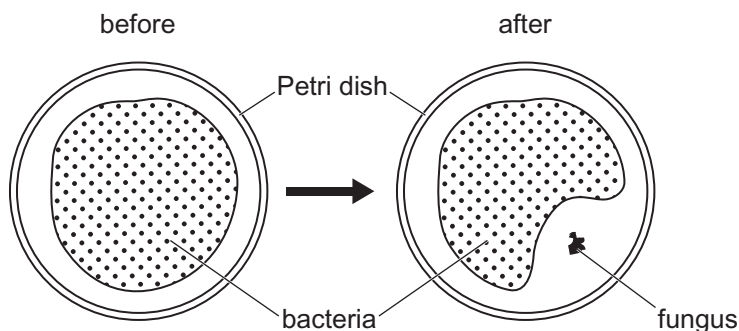
more unemployment

better diets

better road systems

[1]

(b) The development of antibiotics is one reason why we have better medical care. The following diagram shows what happened when bacteria grown in a Petri dish by Alexander Fleming was contaminated by a fungus.



(i) State two conclusions that can be drawn from this observation.

1. _____
2. _____ [2]

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

_____ [1]

(c) Complete the following sentence.

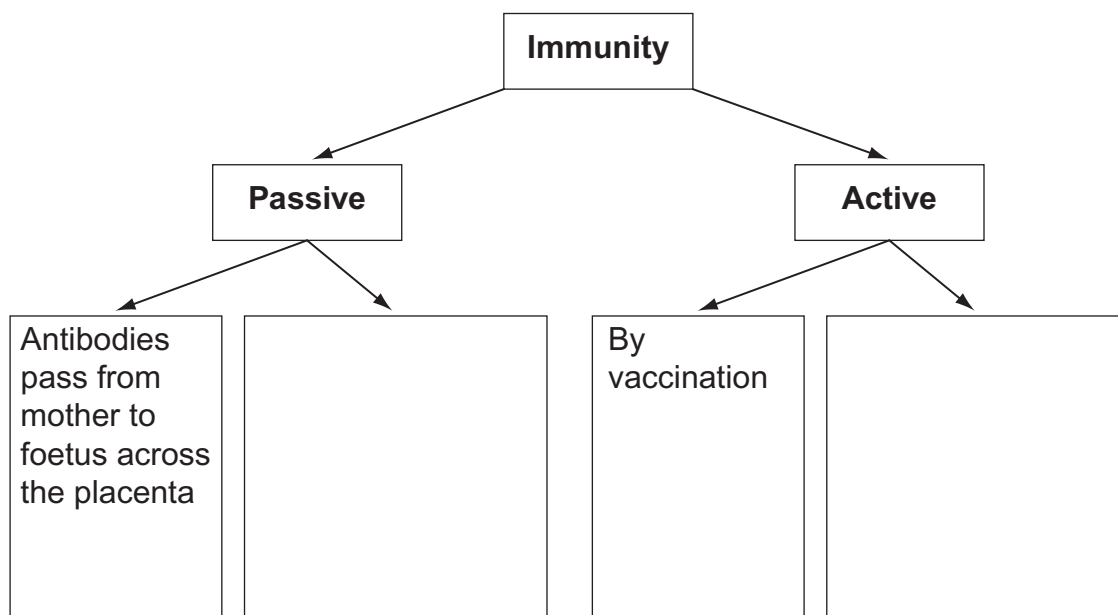
The spread of 'superbugs' such as _____

can be reduced by having good hygiene in hospitals and avoiding

the over-use of antibiotics which prevents bacteria becoming

_____ to them. [2]

- 6 (a) The following flow chart shows one way that passive immunity is achieved and one way that active immunity is achieved.



- (i) Complete the diagram by giving one other way that each type of immunity can be achieved. [2]

- (ii) Give one advantage and one disadvantage of passive immunity.

Advantage _____

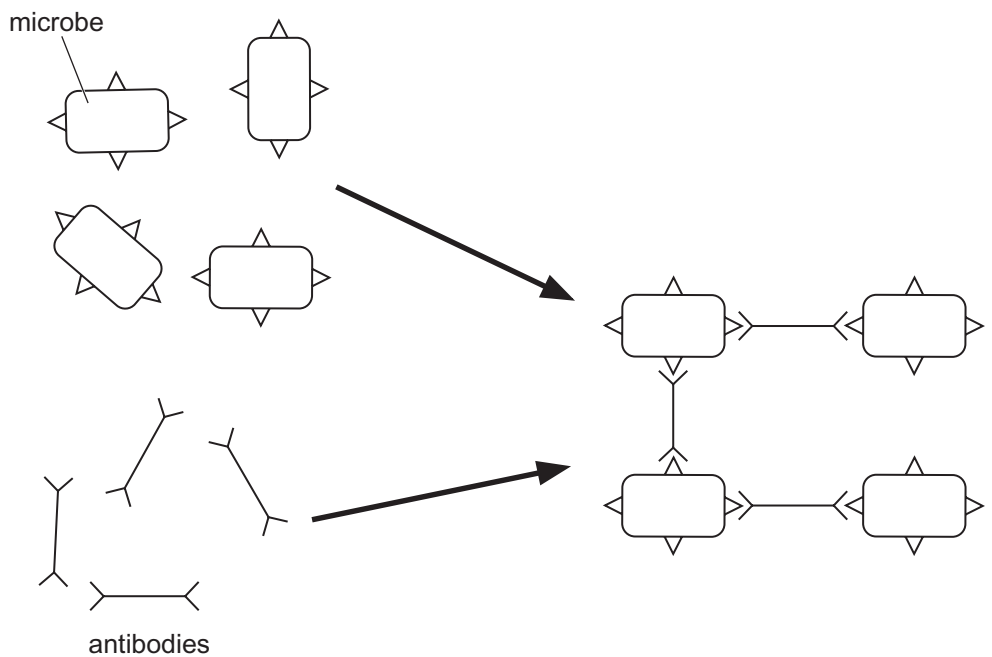
Disadvantage _____

_____ [2]

Examiner Only

Marks Remark

(b) The diagram below shows how antibodies combat microbes.



(i) Use the diagram and your knowledge to explain how antibodies combat microbes.

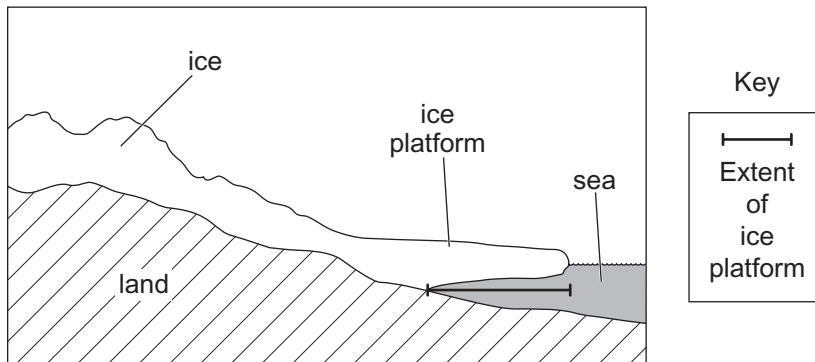
[3]

(ii) Name the process in which white blood cells engulf and digest microbes.

[1]

Examiner Only	
Marks	Remark

7 (a) Polar bears hunt seals from ice 'platforms'.



The table below shows the maximum distance that the ice platform extended beyond an island in the Arctic from 1950–2010.

Year	Extent of ice platform/km
1950	3.5
1960	3.25
1970	2.8
1980	2.6
1990	2.4
2000	2.3
2010	2.2

(i) State the trend shown by the information given in the table.

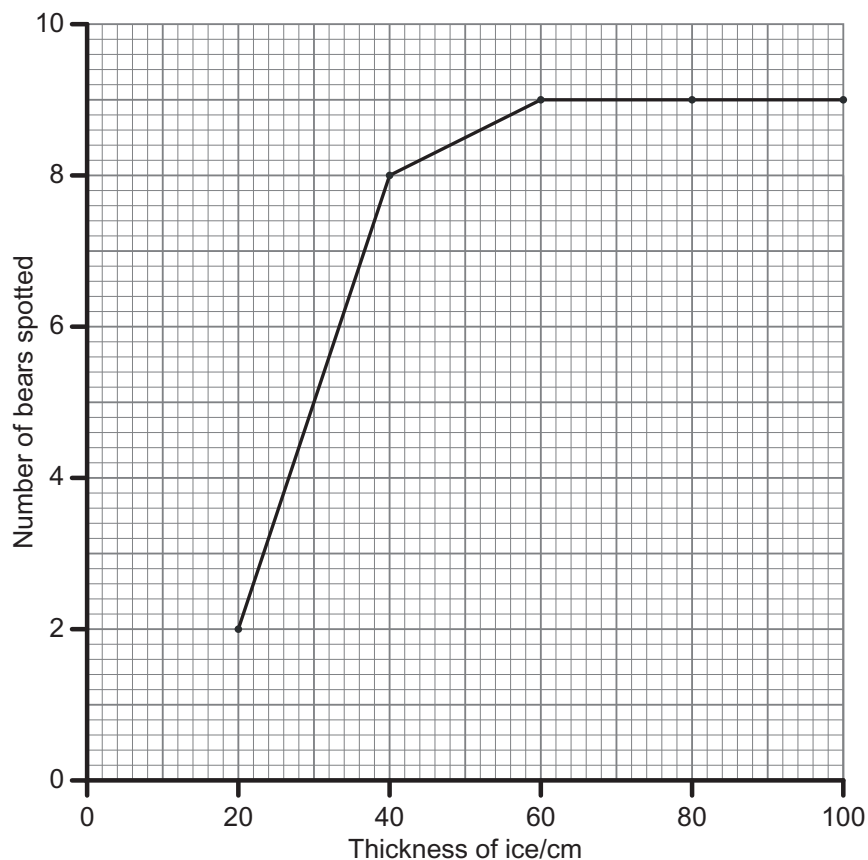
_____ [1]

(ii) It is thought that the change in the ice platform is due to global warming. Explain fully the cause of global warming and how this information shows evidence that it is happening.

_____ [3]

Examiner Only	
Marks	Remark

- (b) Scientists also found that the platforms are getting thinner and this has affected the number of polar bears on the ice. The graph below shows the number of polar bears spotted on different thicknesses of ice.



- (i) Suggest a reason why no polar bears have been spotted on ice below 20 cm in thickness.

_____ [1]

- (ii) Suggest what will happen to polar bears if the ice thickness continues to decrease.

_____ [1]

The extent and thickness of ice are examples of abiotic factors.

- (iii) What is meant by the term **abiotic**?

_____ [1]

THIS IS THE END OF THE QUESTION PAPER

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Marks	Remark

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