



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 25 FEBRUARY 2010, 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) Alcohol can cause harm if too much is taken.
Circle **two** things that can be done to **reduce** the harm caused by alcohol.

Drink high-alcohol drinks such as vodka and whisky

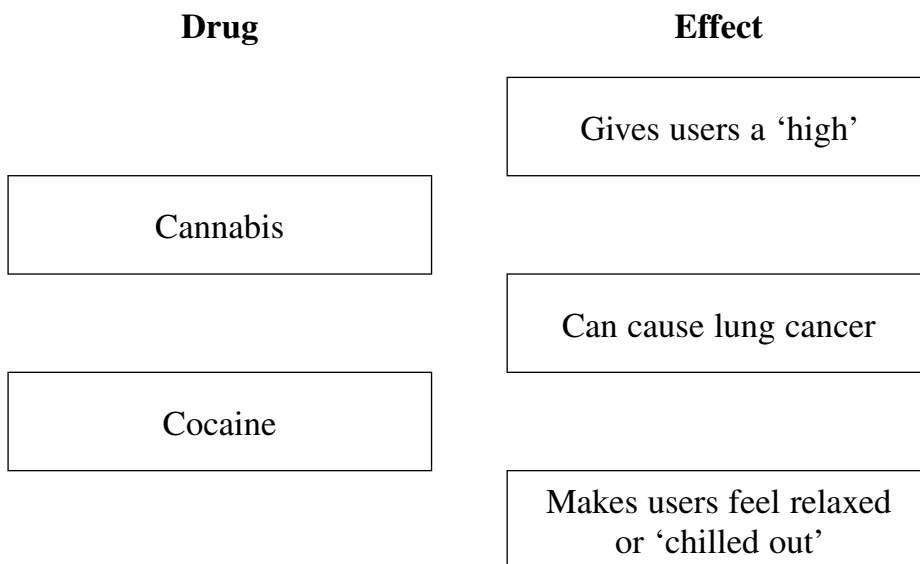
Do not drink more than the recommended number of units

Only binge drink at weekends

Never drink and drive

[2]

- (b) Drugs can also cause harm. Using lines, link each type of drug to its main effect.
One effect will not be used.



[2]

- (c) Complete the following sentences.

Choose from:

carbon monoxide : oxygen : addictive : tar : harmless

Smoking can also cause harm. The harmful substances

in cigarette smoke include _____ and

_____. Nicotine is also present, it increases heart rate

and is _____.

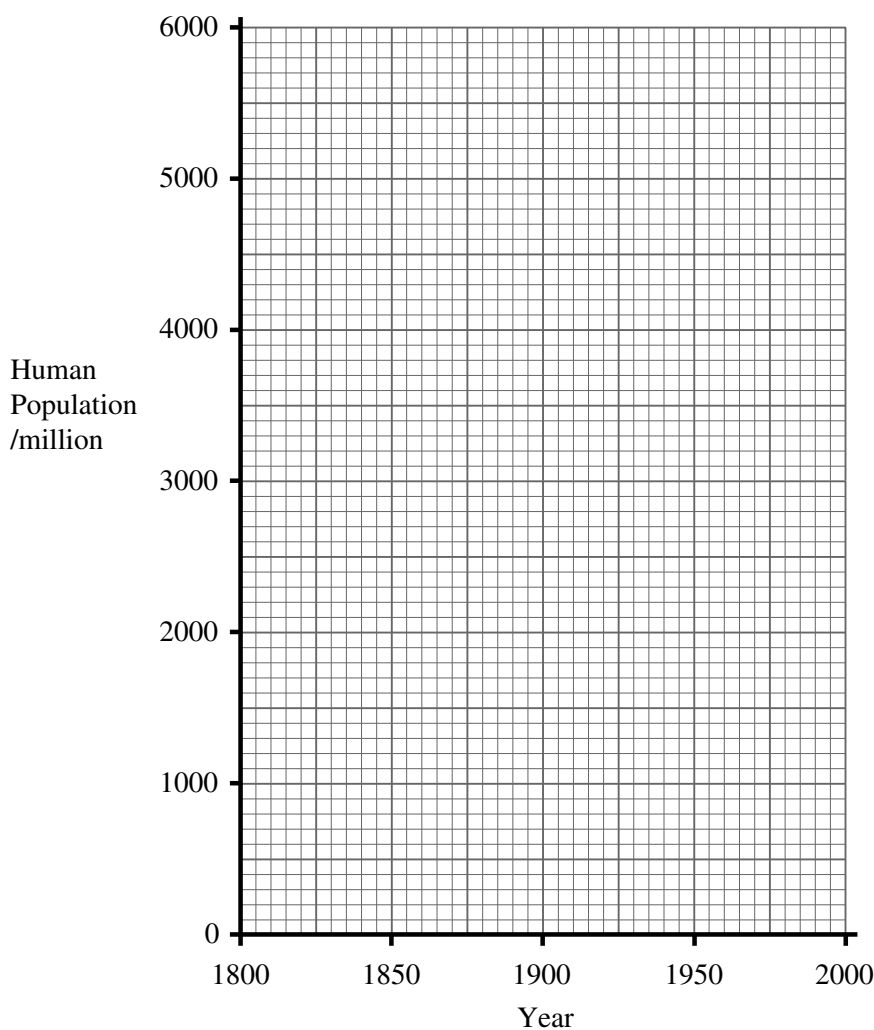
[3]

Examiner Only	
Marks	Remark

2 (a) The following table shows human population growth over 200 years.

Year	Human population/ million
1800	1000
1850	1500
1900	2000
1950	3000
2000	6000

(i) Use this information to draw a **line graph** on the grid below.



[2]

(ii) Calculate by how much the human population increased between the years 1800 and 2000.

_____ million [1]

Examiner Only	
Marks	Remark

(b) One effect of the increase in human population is that there is more pollution. Complete the table below.

Choose from:

water : acid rain : nitrogen : land

type of pollution	example
air	
	household refuse
	oil spillages

[3]

Examiner Only	
Marks	Remark

- 3 (a) There are four types of human blood groups. A survey of 10 people in Belfast produced the following results.

Blood group	Number of people
A	2
B	3
AB	4
O	1

- (i) Name the type of variation shown by human blood groups.

Choose from:

continuous **discontinuous** **cloning**

_____ [1]

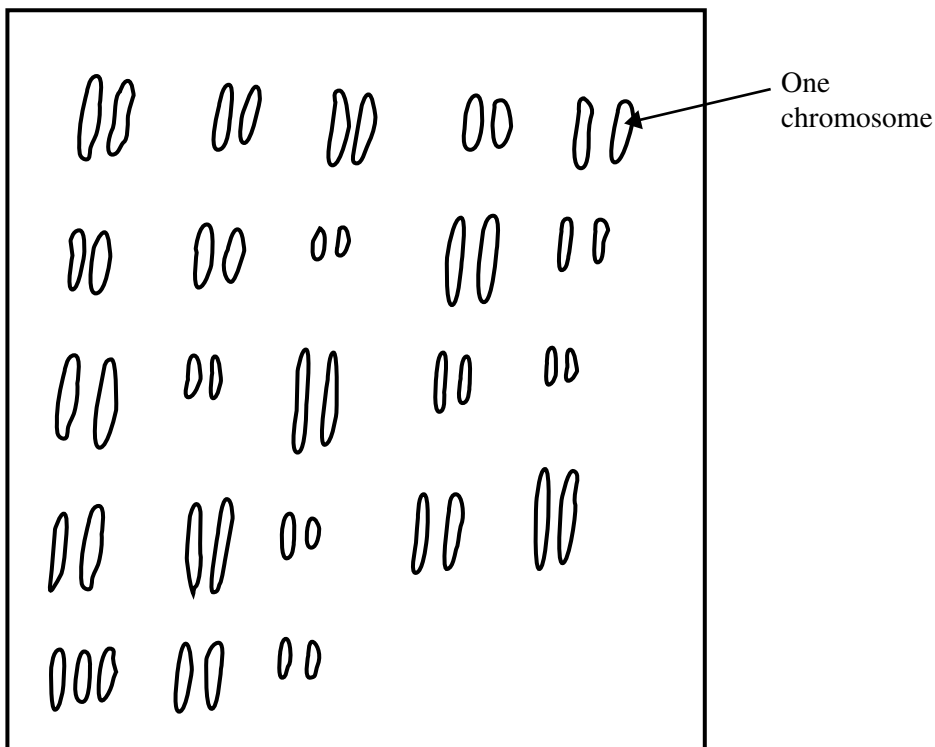
- (ii) Give two reasons why you should **not** use the information from this survey to conclude that blood group AB is the most common group in Northern Ireland.

1. _____

2. _____ [2]

Examiner Only	
Marks	Remark

(b) Genetic mutations can also cause variation. Shown below are the chromosomes in John's cells.



(i) Normally human cells have 46 chromosomes. How many chromosomes are in John's cells?

_____ [1]

(ii) Name the condition that John is suffering from.

Choose from:

cancer : Down's syndrome : cystic fibrosis

_____ [1]

Examiner Only	
Marks	Remark

(c) Skin cancer is caused by mutations in skin cells.

(i) State what is meant by the term cancer.

Choose from:

**controlled cell division : uncontrolled cell division :
uncontrolled microbe growth**

_____ [1]

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

Choose from:

radio waves : microwaves : UV light

_____ [1]

Examiner Only	
Marks	Remark

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(Questions continue overleaf)

- 4 (a) Grey squirrels, since they were introduced by man, have spread rapidly across Ireland.

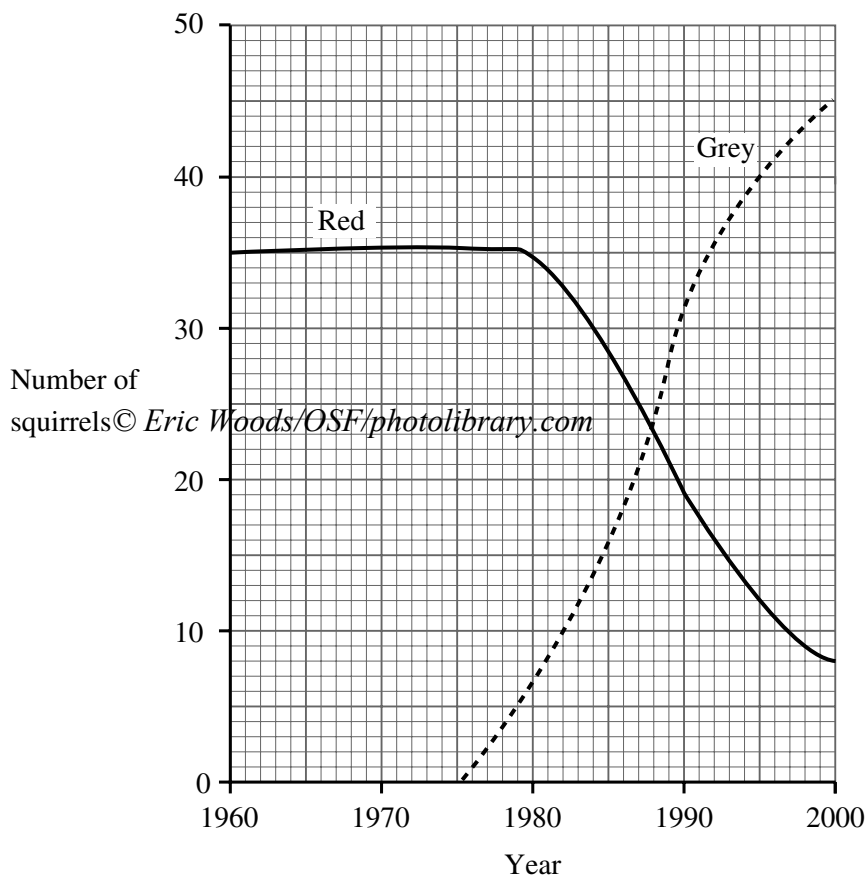


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The following graph shows the number of squirrels in a Co. Antrim wood over a forty year period.



- (i) It is suggested that the spread of grey squirrels is responsible for the fall in red squirrel numbers. Give **one** piece of evidence from the graph that supports this.

_____ [1]

Examiner Only	
Marks	Remark

(ii) What will eventually happen to the red squirrels if their numbers continue to decrease?

_____ [1]

(iii) Suggest **one** way of stopping the spread of grey squirrels.

_____ [1]

(b) (i) The grey squirrel is an example of a competitive invasive species. From the information given and your knowledge state two characteristics of competitive invasive species.

1. _____

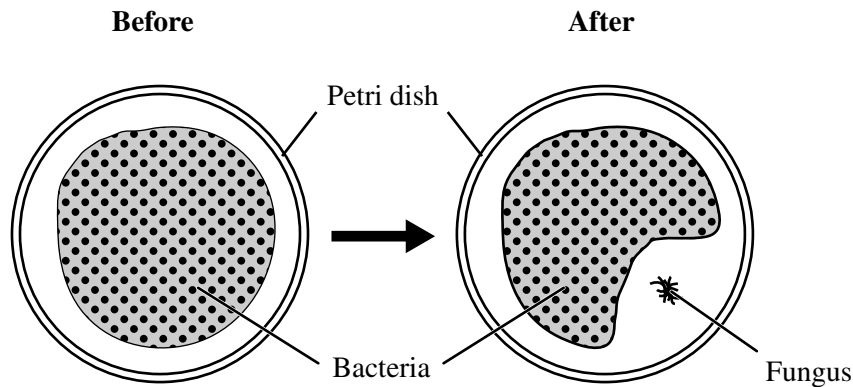
2. _____ [2]

(ii) Name **one** other competitive invasive species.

_____ [1]

Examiner Only	
Marks	Remark

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



- (i) What effect did the fungus have on the bacteria?

_____ [1]

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

_____ [1]

- (iii) Name **one** disease that can be cured by antibiotics.

_____ [1]

- (b) Complete the following sentence.

The spread of 'superbugs' can be reduced by having good

_____ in hospitals and avoiding the over-use of
antibiotics which prevents bacteria becoming _____

to them.

[2]

Examiner Only

Marks Remark

- 6 Willow can be grown as a biofuel. It is very fast growing and can be harvested every three years. When growing, willow removes carbon dioxide from the air but when burnt, releases it back into the air and is described as being carbon neutral.

Use this information and your knowledge to answer the questions below.

- (a) Describe and explain why using willow as a biofuel is an example of sustainable development.

[2]

- (b) Suggest what is meant by the term **carbon neutral**.

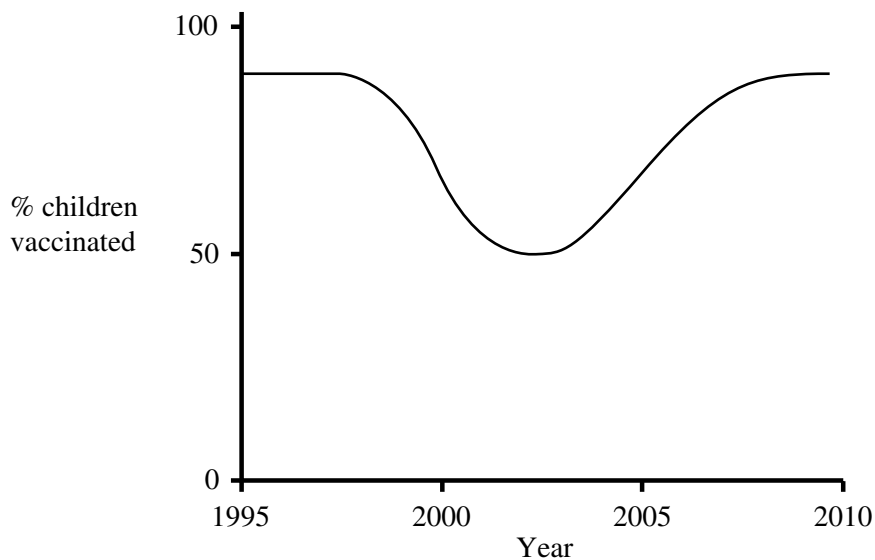
[2]

- (c) Suggest **one** advantage of using carbon neutral fuel sources.

[1]

Examiner Only	
Marks	Remark

(b) The following graph shows how the percentage of children being vaccinated against MMR has changed over the last 15 years.



(i) Describe how the percentage of children being vaccinated against MMR has changed over the last 15 years. Explain why these changes took place.

[3]

(ii) Suggest **one** reason why it is unlikely that there will ever be 100% uptake with any vaccination programme.

[1]

THIS IS THE END OF THE QUESTION PAPER

Examiner Only	
Marks	Remark

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