

Ce	ntre Number
71	
Cano	didate Number

General Certificate of Secondary Education 2012–2013

Science: Single Award

Unit 1 (Biology)

Foundation Tier

[GSS11]

TUESDAY 14 MAY 2013, MORNING



TIME

1 hour, plus your additional time allowance.

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 nine** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 60.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question. Quality of written communication will be assessed in question **9(a)**.

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	

Total	
Marks	

(a) (i) Look at the table below. It has information about two minerals that we need in our diet. Fill in the table. Mineral **Function** Source calcium milk iron making red blood cells [2] (ii) Why do we need fibre in our diet? Circle the correct answer. provides energy : prevents constipation : prevents scurvy [1] (b) (i) Complete the sentences below. Choose from these words: boys : less active : active : girls A person's gender (sex) can affect how much energy they need, _____ usually need more energy than _____ . Also, _____ people need more energy than _____ people. [2]

Examiner Only Marks Remark

(ii) Write down the name of **one** other thing that affects the energy we need. Do not write about gender or activity. _____ [1] 2

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a)	What does extinction mean?	
_		[1]
b) l	Look at the diagram below. It is al	bout modern fishing.
	sonar (ultrasound) to find fish	nets have big mesh size
	to find fish A	
_		
	boats are prevented from fishing	
	in some areas	large nets made of nylon
((i) Which two things shown abornumbers?	ve (A, B, C or D) will help protect fish
		and [2]
((ii) Write down one other thing the become endangered.	nat can cause some types of fish to
	Choose from:	
	creating nature reserves	: pollution : animal testing
		[1]

3 Respiration and photosynthesis are processes involved in energy flow.

Examin	er Only
Marks	Remark

(a) Complete the word equation for **respiration**.

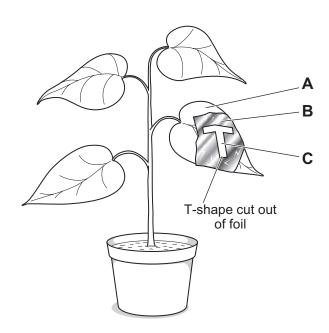
Choose from:

nitrogen : glucose : vitamin C : water

Oxygen + \longrightarrow carbon dioxide + \longrightarrow + energy [2]

A student wanted to find out if light is needed for **photosynthesis**. She set up the investigation shown in the diagram below.

One leaf was covered with aluminium foil. This is shown in the diagram below.



The plant was left in bright light for 48 hours. The leaf with the foil was then removed. It was tested for starch using iodine.

(b) Fill in the table below.

Part of leaf	Colour after starch test	Starch present or absent
A	black	present
В		
С		

[2]

4	(a)	Written below are parts of the male reproductive system.		
		Draw a line from each part to its function.		
		Part	Function	
			nourishes (feeds) sperm	
		testes		
			makes sperm	
		prostate gland		
			tube which carries sperm	
			[2]	
	(b)	Complete the sentence	e below to describe what a hormone is.	
		Choose from:		
	chen	nical messengers : r	nervous system : blood : nerve impulses	
		Hormones are	that travel in the	

Examiner Only

Marks Remark

(c) Look at the table below. It shows how the level of hormones that control sexual development change between the ages of ten and sixteen.

_____ to a target organ where they

[2]

	Level of reproductive hormone/arbitrary units	
Age/years	Females	Males
10	4	2
11	6	3
12	10	6
13	9	8
14	8	10
15	7	9
16	5	8

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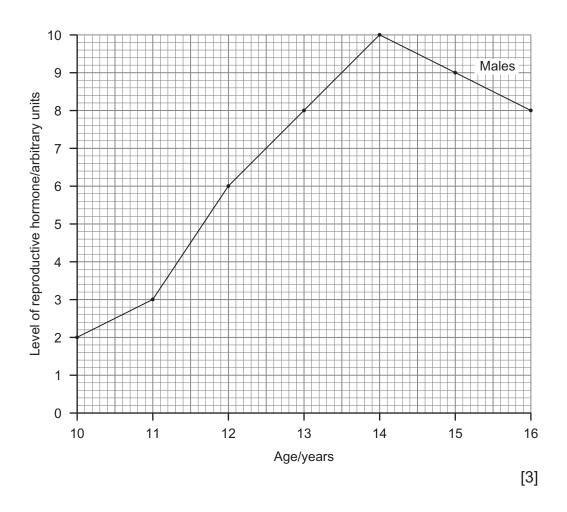
act.

The level of reproductive hormone for males have been plotted on the graph below.

Examiner Only

Marks Remark

(i) Plot and draw a line graph for the **females**. Do this on the graph below.



(ii) Use the graph to describe what happens to male hormone levels.

______[1]

(iii) Write about **one** difference between male and female hormone levels.

______[1]

5 Look at the table below. It shows the results from an experiment that investigated how the number of cress seedlings in a pot affects the mass of the seedlings.

Examin	er Only
Marks	Remark

Number of seedlings per pot	Total mass of seedlings/g	Average mass of seedlings/g
1	20	20
5	65	13
10		7
15	90	

(a)	Calculate the missing values in the table a	above
	Complete the table above.	

[2]

(b)	Describe and explain how the number of seedlings per pot affects the average mass of seedlings.
	[3]

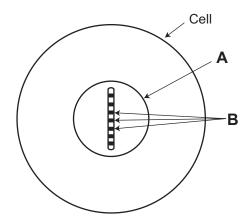
(c)	Write about two things that had to be kept the same in this
	investigation to make the results valid.

1			
_			

_____[2]

(a) Look at the diagram below. It shows an animal cell. Only one 6 chromosome is shown.

Examiner Only					
Marks	Remark				



(i) Name the structure labelled A.

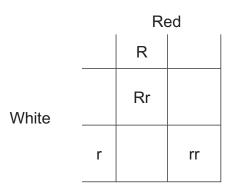
[1]

(ii) Name the structures labelled **B** on the chromosome.

[1]

- (b) Tulip flowers can be red or white. The allele for red colour is dominant to the allele for white colour.
 - (i) Show the offspring of a cross between a heterozygous red tulip and a white tulip. Do this in the genetic diagram below.

Use the symbols; R = red r = white



[2]

(ii) What percentage of the offspring are white?

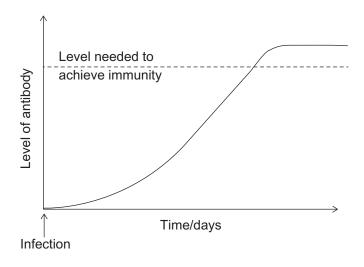
- % [1]
- (iii) Write down the genotype of a homozygous red tulip.

[1]

(a) Look at the graph below. It shows how our antibody level changes when we have a bacterial infection.

7





(i)	Why is tl	here a delay	between i	infection	and	achieving	immunity'	?
-----	-----------	--------------	-----------	-----------	-----	-----------	-----------	---

		[1]
		11

(ii) Look at the graph above. Write down **two** pieces of evidence that show the immunity achieved is active immunity.

1.				

(b) Phagocytosis also helps protect against bacterial infection.

Describe fully the process of phagocytosis.

[2

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(c) The diagram below shows Mr Wilson talking to his doctor.



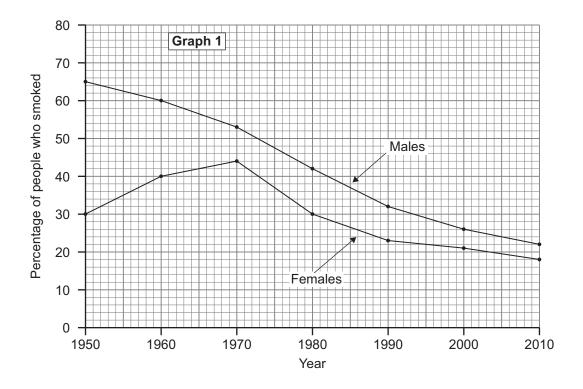
(i)	Why did the doctor not give Mr Wilson an antibiotic for his flu? Explain your answer.	
		[2]
(ii)	Why do new types of antibiotics need to be continually developed?	

Examiner Only Marks Remark

[1]

Look at **Graph 1** below. It shows the percentage of people who smoked cigarettes between the years 1950–2010.

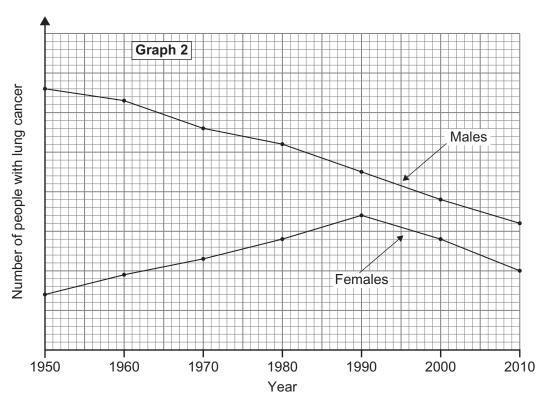




(a) Write down the year when there were most female smokers.

______[1]

Look at **Graph 2**. It shows the number of people who had lung cancer between the years 1950–2010.



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o)	Look at Graphs 1 and 2 . Describe and explain the evidence that line smoking to lung cancer.	nks	Examin Marks	er Only Remai
		[3]		
c)	Apart from causing lung cancer, smoking affects smokers in many other ways. For example, many smokers often lack energy.			
	Explain why.			
		[2]		

Global warming is caused by the carbon cycle becoming unbalanced. Write about global warming.	Examiner Only Marks Remark
You should describe and explain:	
 the causes the effects what can be done to reduce global warming. 	
In this question you will be assessed on your written communication skills including the use of specialist scientific terms.	
[6]	
We can find out about the level of pollution in the environment by using biotic indicators such as lichens. Explain why lichens are good at doing this.	
[1]	
THIS IS THE END OF THE QUESTION PAPER	
	Write about global warming. You should describe and explain: • the causes • the effects • what can be done to reduce global warming. In this question you will be assessed on your written communication skills including the use of specialist scientific terms. [6] We can find out about the level of pollution in the environment by using biotic indicators such as lichens. Explain why lichens are good at doing this. [1]

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