



Centre Number

71

Candidate Number

General Certificate of Secondary Education  
2012–2013

## Science: Single Award

Unit 1 (Biology)

Foundation Tier

[GSS11]

ML

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

1 (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]

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

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

Examiner Only	
Marks	Remark

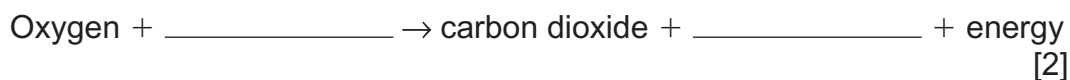


3 Respiration and photosynthesis are processes involved in energy flow.

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

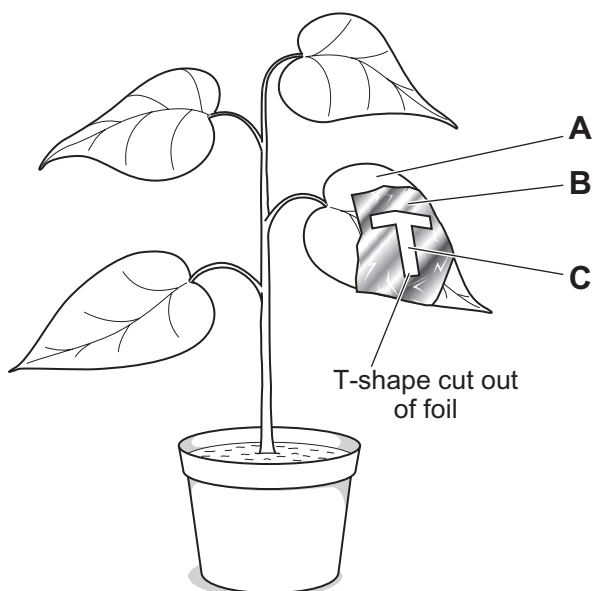
Choose from:

**nitrogen : glucose : vitamin C : water**



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
<b>A</b>	black	present
<b>B</b>		
<b>C</b>		

[2]

Examiner Only	
Marks	Remark

(c) Here is a simple food chain.



(i) From the food chain name the:

producer. \_\_\_\_\_

secondary consumer. \_\_\_\_\_

[2]

(ii) What is the original source of energy in all food chains?

\_\_\_\_\_

[1]

Examiner Only	
Marks	Remark

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 below to describe what a hormone is.

Choose from:

**chemical messengers : nervous system : blood : nerve impulses**

Hormones are \_\_\_\_\_ that travel in the \_\_\_\_\_ to a target organ where they act.

[2]

(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.

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

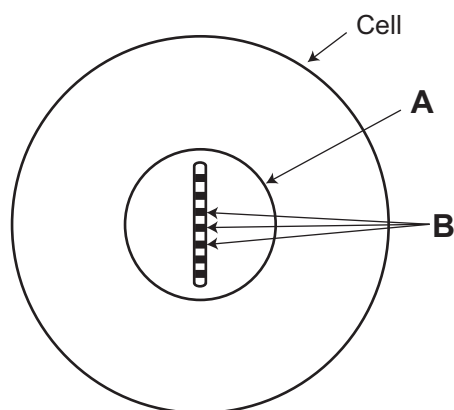
Examiner Only	
Marks	Remark







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



- (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

		Red	
		R	
		Rr	
White	r		rr

[2]

- (ii) What percentage of the offspring are white?

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

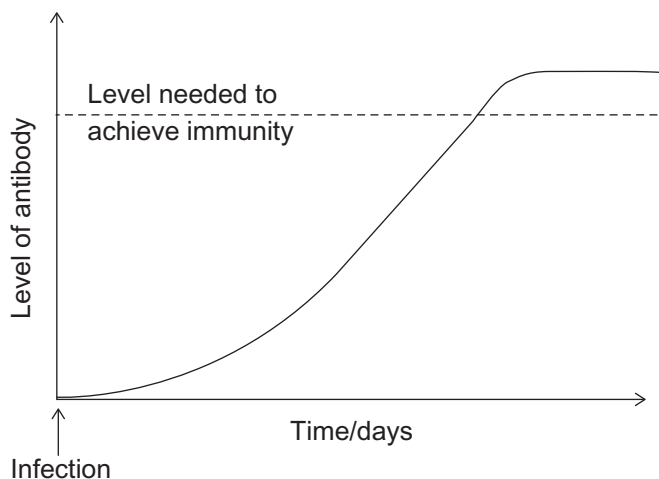
- (iii) Write down the genotype of a **homozygous** red tulip.

\_\_\_\_\_

[1]

Examiner Only	
Marks	Remark

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



- (i) Why is there a delay between infection and achieving immunity?

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

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

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

- (b) Phagocytosis also helps protect against bacterial infection.

Describe fully the process of phagocytosis.

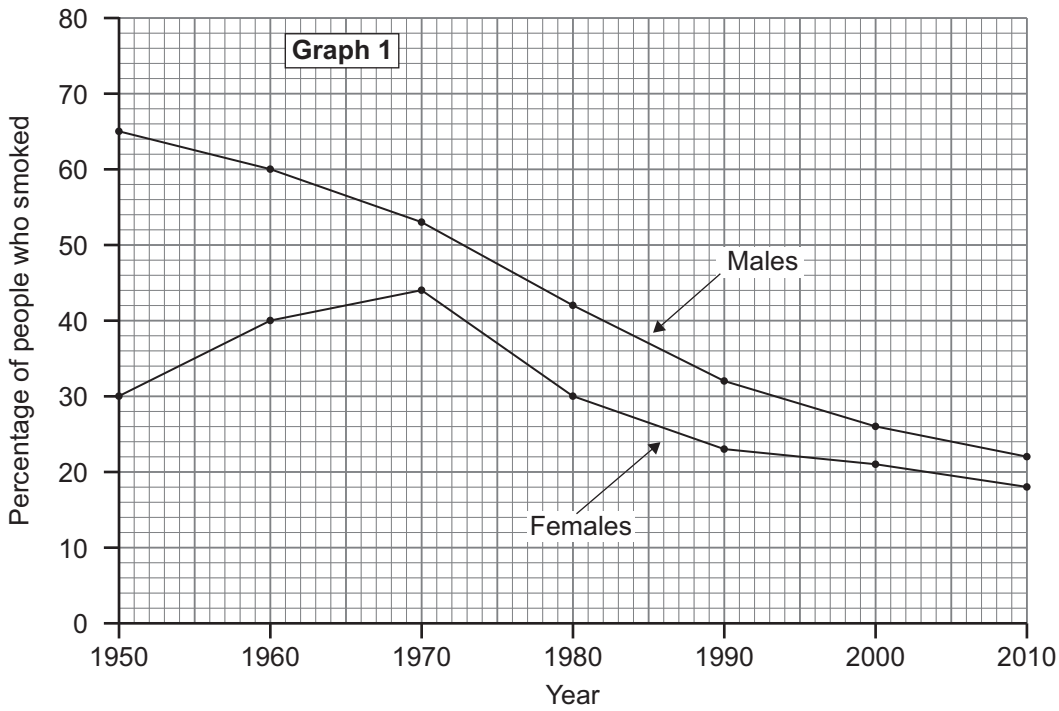
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [2]

Examiner Only	
Marks	Remark



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

Examiner Only	
Marks	Remark

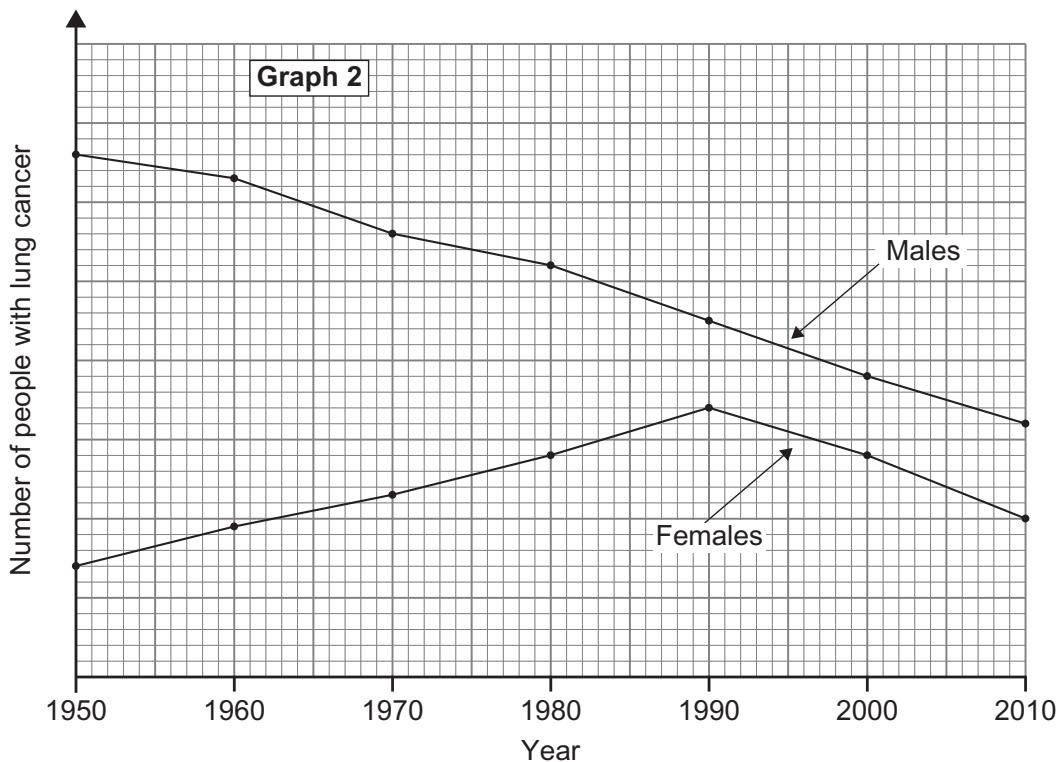


(a) Write down the year when there were most female smokers.

\_\_\_\_\_

[1]

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









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