

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

General Certificate of Secondary Education  
November 2009



**MATHEMATICS (MODULAR) (SPECIFICATION B)**  
**Module 1 Higher Tier Section B**

43051/HB

**H**

Friday 13 November 2009 2.05 pm to 2.35 pm

<p><b>For this paper you must have:</b></p> <ul style="list-style-type: none"> <li>mathematical instruments.</li> </ul> <p>You must <b>not</b> use a calculator.</p>	
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Time allowed for Section B: 30 minutes

**Instructions**

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Answers written in margins will not be marked.
- Do all rough work in this book.
- You may **not** use your calculator in Section B. Your calculator must remain on the floor under your seat.
- When you have answered Section B you may work again on Section A but you may **not** use your calculator. It must remain on the floor under your seat.
- At the end of the examination tag Section A and Section B together with Section A on top.

**Information**

- The maximum mark for Section B is 23.
- The marks for questions are shown in brackets.
- You may ask for more answer paper and graph paper. These must be tagged securely to this answer booklet.

**Advice**

- In all calculations, show clearly how you work out your answer.



Answer **all** questions in the spaces provided.

- 6** The manager of a gym keeps a record of the number of people in the gym. The data is logged at the beginning of each hour one morning.

<b>Time</b>	<b>Number of people in the gym</b>
6 am	4
7 am	15
8 am	32
9 am	18
10 am	20
11 am	16

- 6** (a) 27 people entered the gym between 11 am and 12 noon. Nine people left the gym during this same time period.

How many people were in the gym at 12 noon?

.....  
.....

Answer ..... (2 marks)

- 6** (b) Six people left the gym between 7 am and 8 am.

How many people entered the gym between 7 am and 8 am?

.....  
.....

Answer ..... (2 marks)

4
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- 7 100 children chose their favourite sport from a list of four sports.  
The two-way table shows some of the results.

	Football	Basketball	Hockey	Athletics
Boys		21		3
Girls	4		10	17

- 7 (a) 30 children chose basketball.  
Twice as many boys chose football as chose hockey.

Use this information to complete the table.

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(4 marks)

- 7 (b) One of these children is chosen at random.

What is the probability that this child chose athletics as their favourite sport?

.....

Answer ..... (2 marks)

6
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**Turn over for the next question**

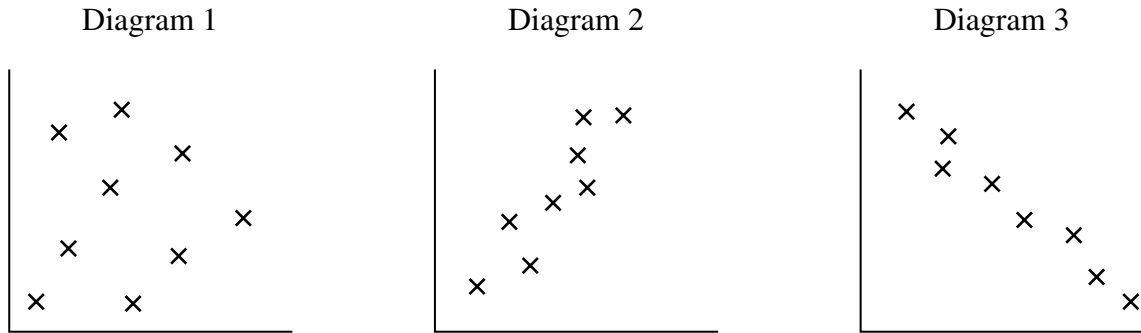
**Turn over ►**



8 Here are three statements.

- A The amount of rainfall and the number of sunbeds hired on a beach
- B The number of people living in a house and the size of the garden
- C The age of a child and the height of a child

Here are three scatter diagrams:



Match each scatter diagram to a statement.

- Statement A Diagram .....
- Statement B Diagram .....
- Statement C Diagram .....

(2 marks)

2

9 A company which makes batteries wants to test how long the batteries last.

9 (a) Explain why the company tests a sample and not the whole population.

.....  
 .....

(1 mark)

9 (b) Carl suggests testing the first 80 batteries produced on Monday.  
 Lynn suggests testing two batteries every hour over a 40-hour week.

Give **one** advantage of each method.

Carl's method: .....

.....

Lynn's method: .....

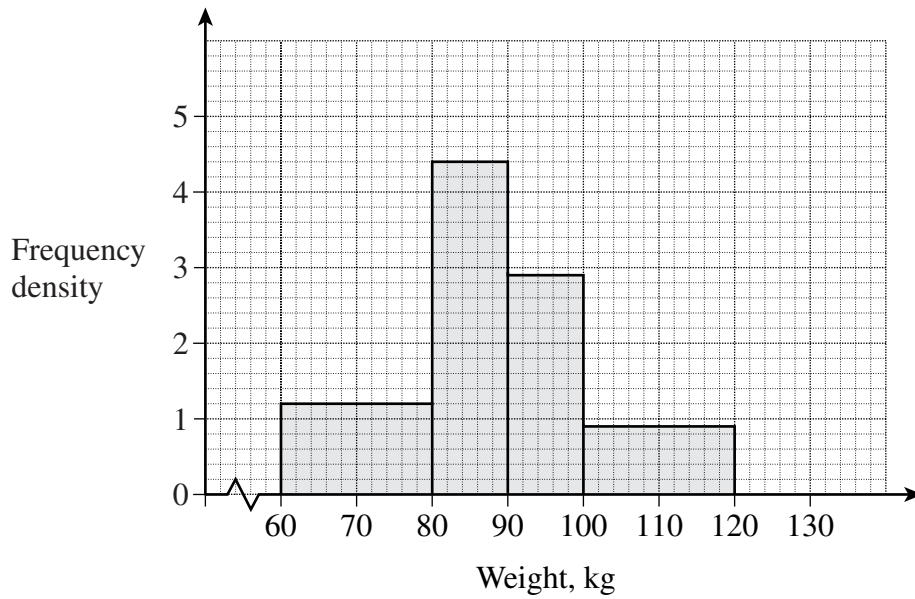
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(2 marks)

3



**10** The histogram represents the weights, in kilograms, of the members of a slimming club.



**10 (a)** Work out the total number of members in the slimming club.

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Answer ..... (3 marks)

**10 (b)** Four new members joined the club.  
They each weighed between 120 kilograms and 130 kilograms.

Complete the histogram.

(1 mark)

4
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Turn over ►



**11** A bag contains coloured balls.  
Each ball has a positive whole number written on it.

$\frac{1}{3}$  of the balls are red.

$\frac{1}{6}$  of the balls are blue.

The rest of the balls are green.

The probability that a red ball has an even number on it is  $\frac{3}{8}$

The probability that a blue ball has an even number on it is  $\frac{1}{4}$

The probability that a green ball has an even number on it is  $\frac{5}{12}$

Calculate the probability that a ball, drawn at random, has an odd number on it.

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Answer ..... (4 marks)

4

**END OF QUESTIONS**



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ANSWER IN THE SPACES PROVIDED**



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