Surname		Other Names	
Centre Number			Candidate Number									
Candidate Signature												

For Examiner's Use

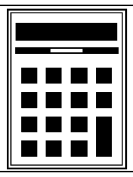
General Certificate of Secondary Education
June 2008

MATHEMATICS (MODULAR) (SPECIFICATION B) **43001/HA**
Module 1 Higher Tier Section A

H

Thursday 12 June 2008 1.30 pm to 1.55 pm

For this paper you must have:
- a calculator
- mathematical instruments
- a treasury tag.



Time allowed for Section A: 25 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.
- Use a calculator where appropriate.
- Do all rough work in this book.
- This paper is divided into two sections: Section A and Section B.
- After the 25 minutes allowed for Section A, you must put your calculator on the floor under your seat. You will then be given Section B.
- 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 A is 20.
- 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 book.

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

For Examiner's Use			
Section A		**Section B**	
Question	Mark	Question	Mark
1		6	
2		7	
3		8	
4		9	
5			
Total Section A			
Total Section B			
TOTAL			
Examiner's Initials			

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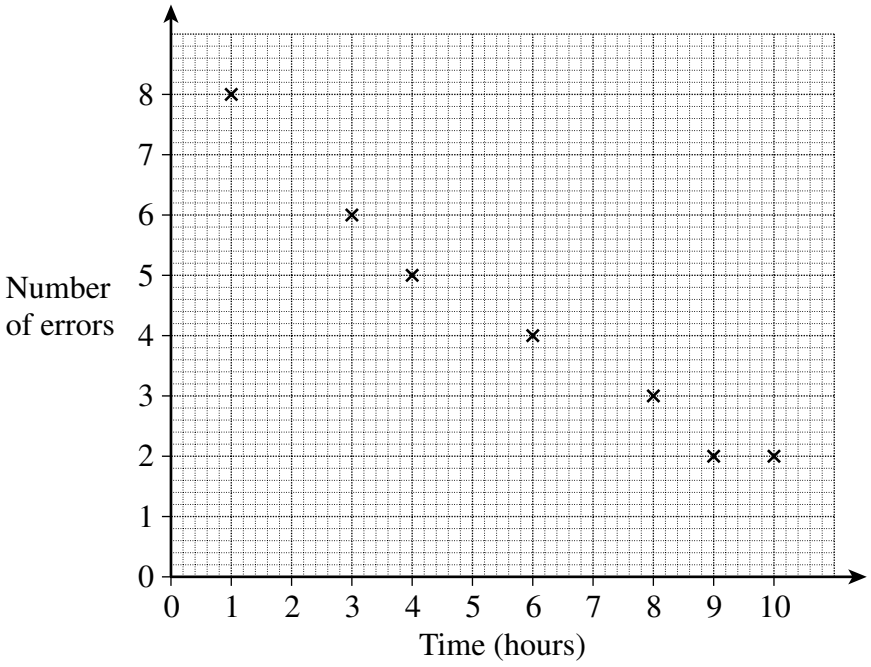
Answer **all** questions in the spaces provided.

1 The scatter diagram shows the time that seven students spent practising for a typing test and the number of errors they made in the test.



1 (a) (i) Draw a line of best fit on the diagram. *(1 mark)*

1 (a) (ii) Use your line of best fit to estimate the number of errors made if a student practised for two hours.

Answer ..... *(1 mark)*

1 (b) Asif practised for two hours and only made one error.

Give a possible reason why his number of errors was so low.

.....

.....

(1 mark)

1 (c) Leanne says "If I practise for 15 hours I will definitely **not** make any errors".

Is she correct?
Give a reason for your answer.

.....

.....

(1 mark)

4

Turn over ▶

2 (a) The amounts spent by 50 customers at a shop one Saturday in November are shown.

Amount spent, x (£)	**Frequency**		
$0 < x \leqslant 10$	18		
$10 < x \leqslant 20$	13		
$20 < x \leqslant 30$	12		
$30 < x \leqslant 40$	7		

2 (a) (i) Work out the probability that a customer chosen at random spent more than £20.

.....

Answer ..... *(2 marks)*

2 (a) (ii) Explain why it is **not** possible to work out the probability that a customer chosen at random spent exactly £8.

.....

.....

.....

(1 mark)

2 (a) (iii) Use midpoints to calculate an estimate of the mean amount spent at the shop.

.....

.....

.....

.....

Answer £ ..... *(3 marks)*

2 (b) On a Saturday in December the following values were calculated for the same shop.

Mean = £22.40 Range = £47

Write down **two** comparisons between the amounts spent at the shop on the two different Saturdays.

Comparison 1 .....

.....

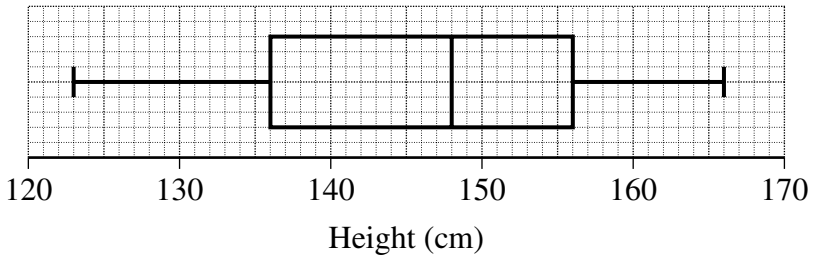
Comparison 2 .....

.....

(2 marks)

8

3 The box plot shows some information about the heights of 100 children.



Work out the interquartile range of the heights of these children.

.....

Answer ..... cm *(2 marks)*

2

Turn over ▶

4 The table shows the number of pupils in each year group of a junior school.

Year 3	Year 4	Year 5	Year 6
275	312	178	235

There are 1000 pupils in the school.
The headteacher wants to take a stratified sample of 50 children to carry out a survey.

How many more year 6 pupils than year 5 pupils would be chosen?

.....

.....

.....

Answer ..... *(3 marks)*

3

5 Sam has two bags of marbles.
Bag A contains 9 red marbles and 6 green marbles.
Bag B contains 3 red marbles and 7 green marbles.

Sam rolls a fair six-sided dice once.
If she rolls a six she takes a marble from bag A.
If she does **not** roll a six she takes a marble from bag B.

Calculate the probability that Sam chooses a red marble.

.....

.....

.....

.....

.....

.....

Answer ..... *(3 marks)*

3

END OF SECTION A

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Candidate Signature												

General Certificate of Secondary Education
June 2008

ASSESSMENT and QUALIFICATIONS ALLIANCE

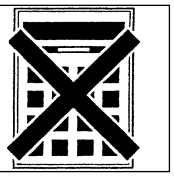
MATHEMATICS (MODULAR) (SPECIFICATION B) **43001/HB**
Module 1 Higher Tier Section B

H

Thursday 12 June 2008 2.00 pm to 2.25 pm

For this paper you must have:
- mathematical instruments.

You must **not** use a calculator.



Time allowed for Section B: 25 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 20.
- 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 (a) The two-way table shows the number of televisions and radios in 50 households.

Televisions

Radios	**0**	**1**	**2**	**3**
0	0	3	0	0
1	2	5	8	3
2	1	6	12	5
3	0	0	3	2

6 (a) (i) How many households have two televisions?

.....

Answer ..... *(2 marks)*

6 (a) (ii) How many households have the same number of televisions as radios?

.....

Answer ..... *(2 marks)*

6 (b) Louise wanted to find out the number of hours of television watched last Sunday.
This is her question and response section.

Question: How many hours of television did you watch last Sunday?

Response: Tick a box

☐ 1 to 3 hours ☐ 4 to 6 hours ☐ 6 to 8 hours ☐ more than 8 hours

Write down **two** criticisms of the response section.

Criticism 1 .....

.....

(1 mark)

Criticism 2 .....

.....

(1 mark)

6

7 A snack bar sells coffee, tea, hot chocolate and fruit juice.
The table shows some of the probabilities of customers choosing each drink.

Coffee	0.30
Tea	0.35
Hot chocolate	
Fruit juice	0.15

7 (a) Work out the probability that a customer chooses hot chocolate.

.....

.....

Answer ..... *(2 marks)*

7 (b) Two customers come into the snack bar to get a drink.

Work out the probability that they both choose coffee.

.....

.....

Answer ..... *(2 marks)*

4

Turn over ▶

8 The table shows the number of sunny days recorded in Sunnyville.

Spring 2006	**Summer 2006**	**Autumn 2006**	**Winter 2006**	**Spring 2007**	**Summer 2007**
45	72	38	29	53	84

Four-point moving average	46	48	

8 (a) The first two four-point moving averages are given.

Work out the third four-point moving average.

.....

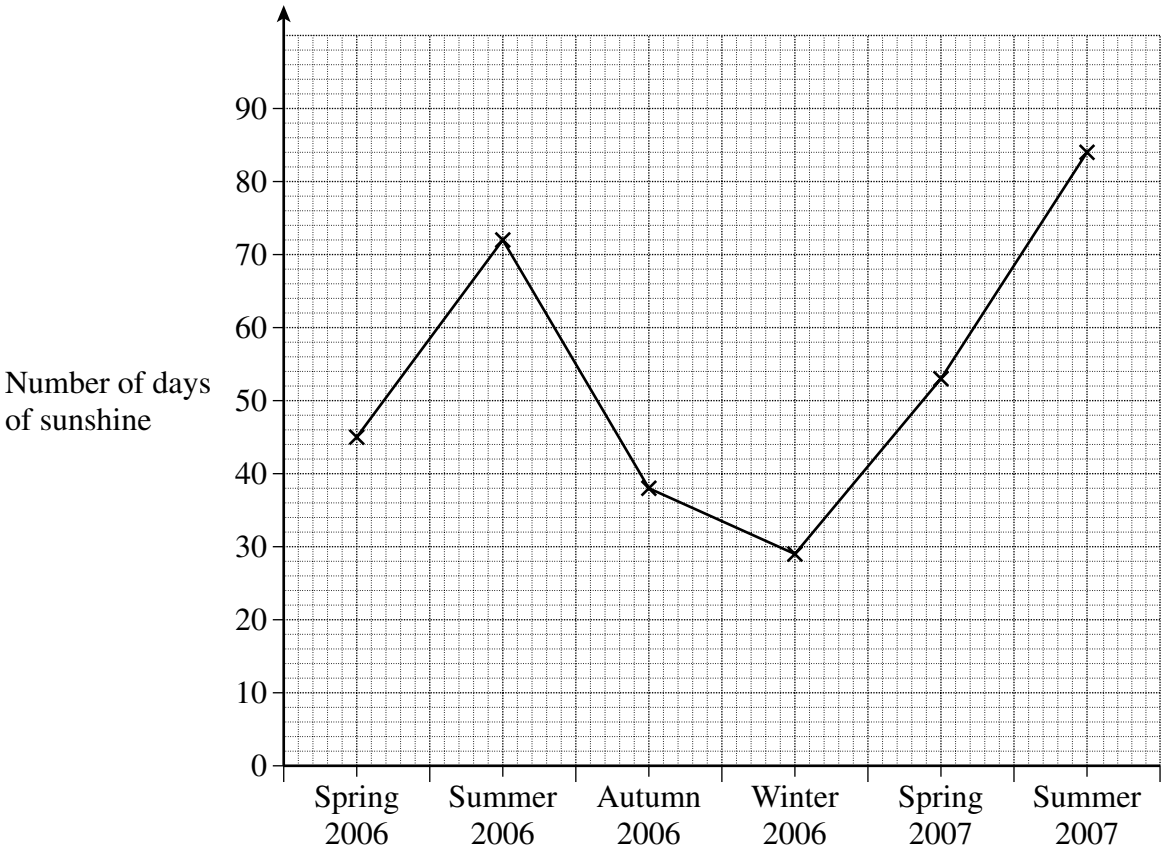
.....

.....

Answer ..... *(2 marks)*

8 (b) The time series graph shows the original data.

Plot the three moving averages on the same graph.



(2 marks)

8 (c) Use a trend line to estimate the number of sunny days in Sunnyville in Autumn 2007.

.....

.....

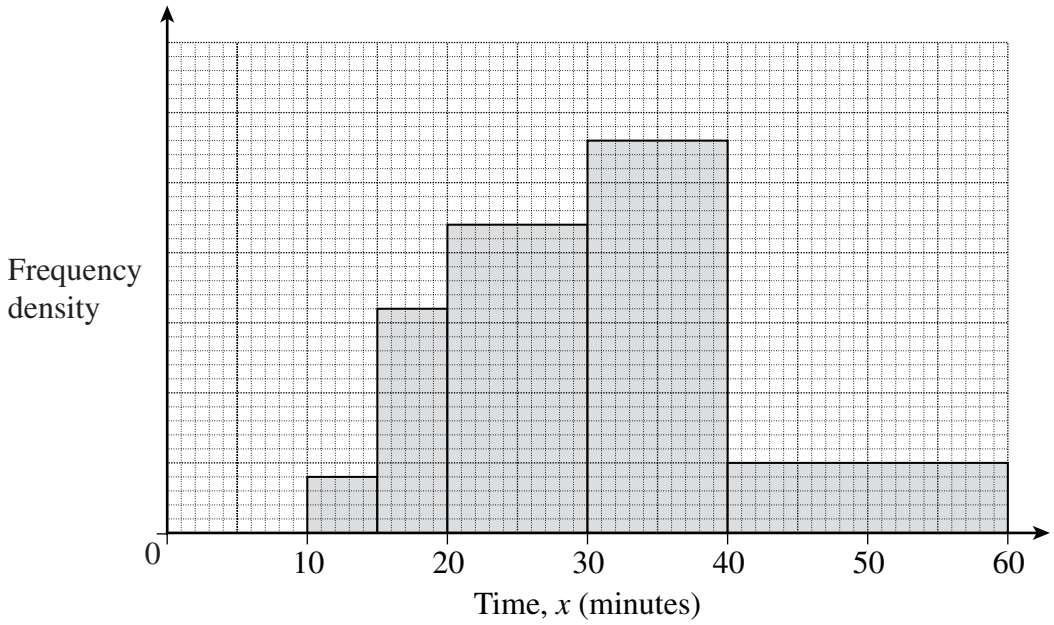
.....

.....

Answer ..... *(3 marks)*

7

9 The histogram represents the times that a number of runners took to complete a cross-country race.



Ten runners completed the race in under 20 minutes.

How many runners completed the race?

.....

.....

.....

.....

Answer ..... *(3 marks)*

END OF QUESTIONS

3

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