Surname		Other Names	
Centre Number			Candidate Number									
Candidate Signature												

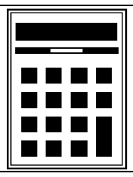
For Examiner's Use

General Certificate of Secondary Education
June 2007

MATHEMATICS (MODULAR) (SPECIFICATION B) 33001/IA
Module 1 Intermediate Tier Section A

Monday 18 June 2007 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 blue or black ink or ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- 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.

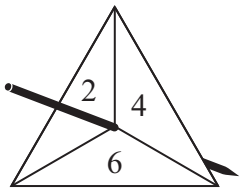
Advice
- In all calculations, show clearly how you work out your answer.

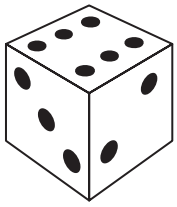
For Examiner's Use			
Section A		**Section B**	
Question	Mark	Question	Mark
1		5	
2		6	
3		7	
4		8	
		9	
Total Section A			
Total Section B			
TOTAL			
Examiner's Initials			

LEAVE MARGIN BLANK

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

1 A fair three-sided spinner has sections labelled 2, 4 and 6.
The spinner is spun once and a fair six-sided dice is thrown once.





The number that the spinner lands on is added to the number that the dice lands on.
This gives the score.

(a) Complete the table to show all possible scores.

Dice

Spinner +	**1**	**2**	**3**	**4**	**5**	**6**
2	3					
4						
6						12

(2 marks)

(b) Write down the probability that the score is 2.

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

(c) Explain why the probability that the score is 6 is $\frac{2}{18}$

.....

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(2 marks)

5

2 The number of pupils absent from a school each week is listed below.

125 134 121 111 105 109 118 122 119 126 133

(a) Show the data in an ordered stem-and-leaf diagram.

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Key 12 | 5 represents 125 pupils

..... | .....

..... | .....

..... | .....

..... | .....

(3 marks)

(b) Write down the median number of pupils absent.

.....

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

(c) The number of pupils absent the following week was 130.

When this value is included in the above data what happens to the median?

Tick the correct box.

Increases	Stays the same	Decreases
☐	☐	☐

(1 mark)

5

Turn over ►

3 The table summarises the travelling time to work of 80 people.

Travelling time, t (minutes)	**Number of people**
$0 < t \leqslant 10$	6
$10 < t \leqslant 20$	17
$20 < t \leqslant 30$	19
$30 < t \leqslant 40$	23
$40 < t \leqslant 50$	15

(a) Write down the modal class.

Answer ..... $< t \leqslant$ ..... *(1 mark)*

(b) Calculate an estimate of the mean travelling time.

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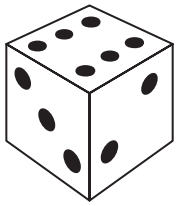
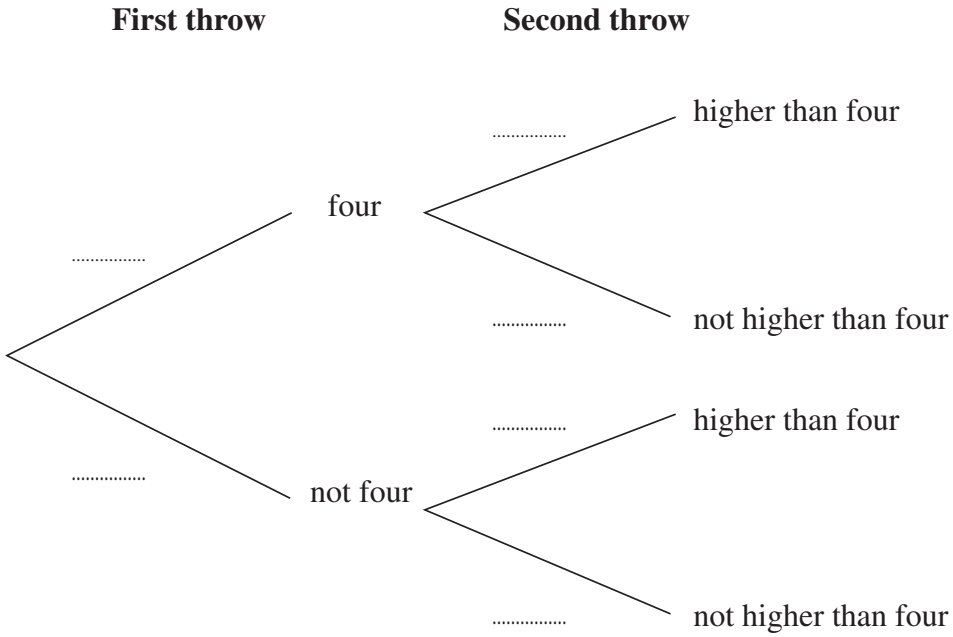
Answer ..... minutes *(4 marks)*

5

4 Alia has a fair six-sided dice.
She throws it twice.



(a) Complete the tree diagram.



(3 marks)

(b) Calculate the probability that Alia throws a four and then throws a number higher than four in that order.

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

5

END OF SECTION A

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There are no questions printed on this page

Surname		Other Names	
Centre Number			Candidate Number									
Candidate Signature												

General Certificate of Secondary Education
June 2007

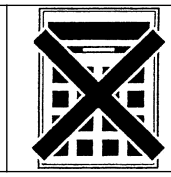
ASSESSMENT and QUALIFICATIONS ALLIANCE

MATHEMATICS (MODULAR) (SPECIFICATION B) **33001/IB**
Module 1 Intermediate Tier Section B

Monday 18 June 2007 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 blue or black ink or ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- 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.

5 A bag contains 6 toffees, 4 chocolates and 5 chews.
One sweet is chosen at random from the bag.

Write down the probability that the chosen sweet is

(a) a toffee

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.....

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

(b) **not** a toffee.

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

3

6 The table shows the type and number of CDs that Roger owns.

Type	Number
Rock	18
Pop	12
Classical	6

Draw a pie chart to represent this information.

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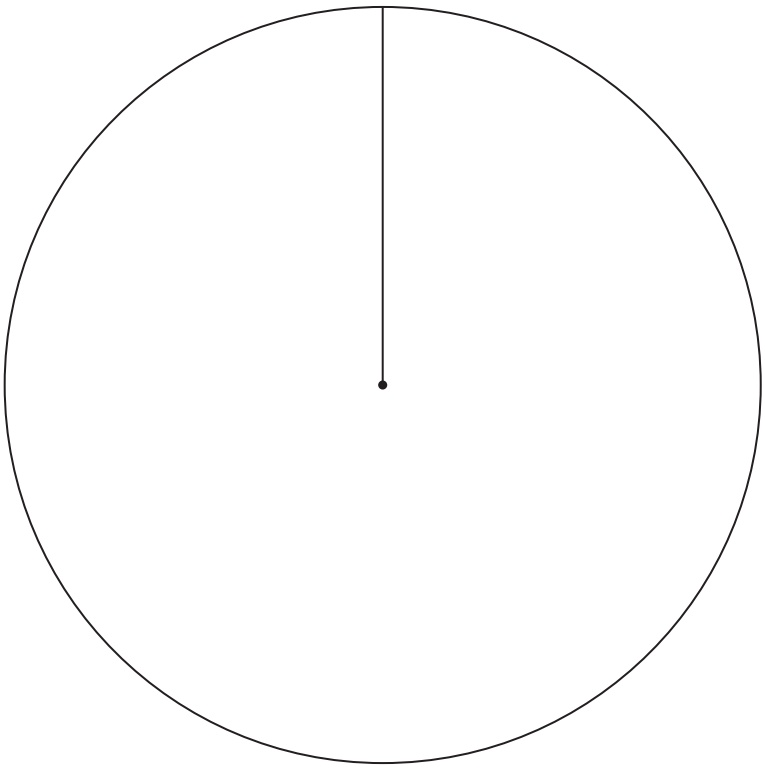


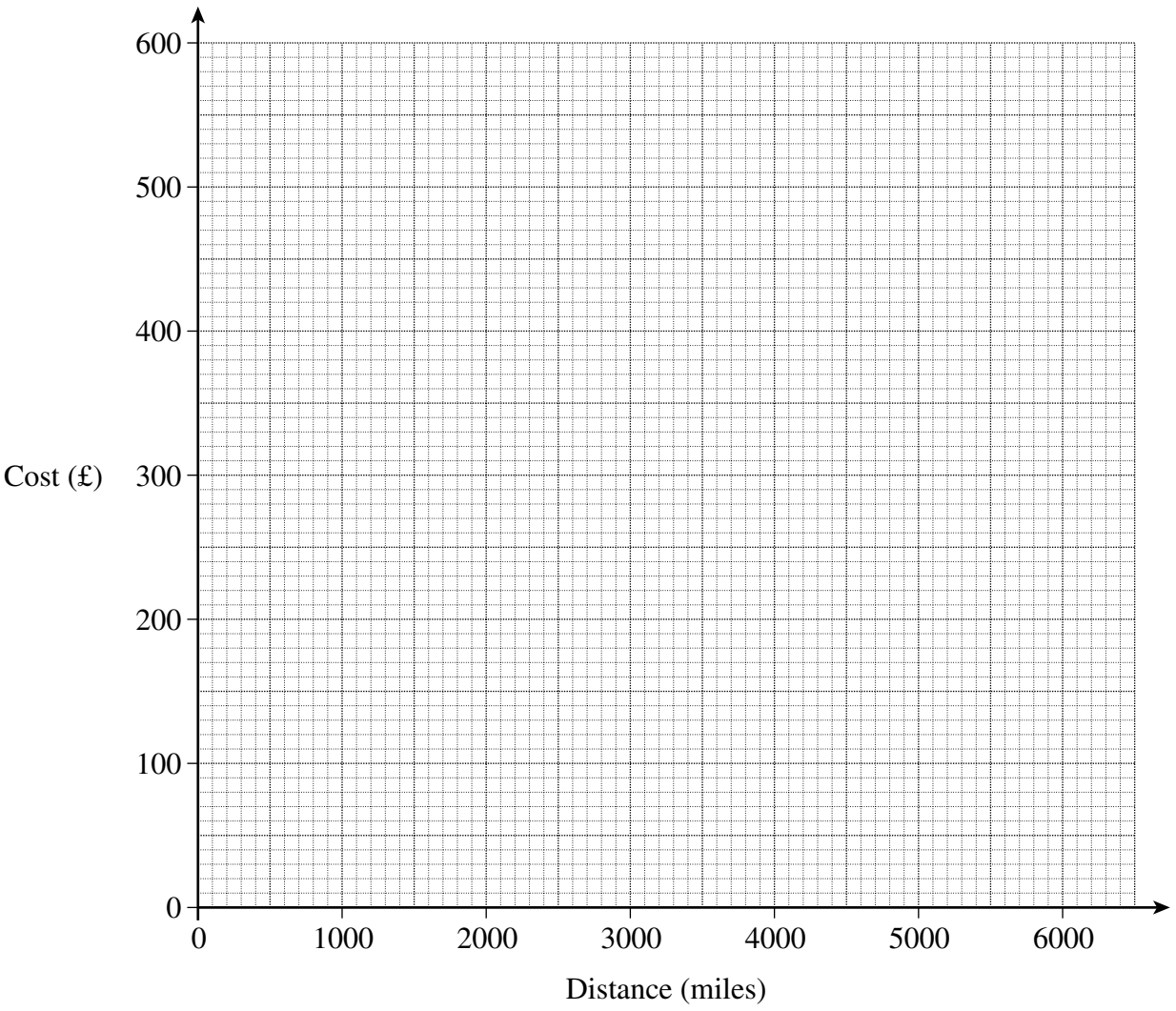
(3 marks)

3

7 The distance and cost of various flights is shown in the table.

Distance (miles)	500	900	1100	2500	3500	5500	6000
Cost (£)	150	140	200	300	400	520	550

(a) Plot the data as a scatter graph.



(2 marks)

(b) Draw a line of best fit on your scatter graph.

(1 mark)

(c) Describe the relationship shown by your scatter graph.

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(1 mark)

(d) A flight is 5000 miles.

Use your line of best fit to estimate the cost of this flight.

Answer £ ..... *(1 mark)*

5

Turn over for the next question

8 Joe carries out a survey about fast foods.
This is one of his questions.

Do you agree that eating fast foods is unhealthy?

(a) Explain why this question is **not** suitable.

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(1 mark)

(b) Rewrite the question so that it is suitable.
Include response boxes.

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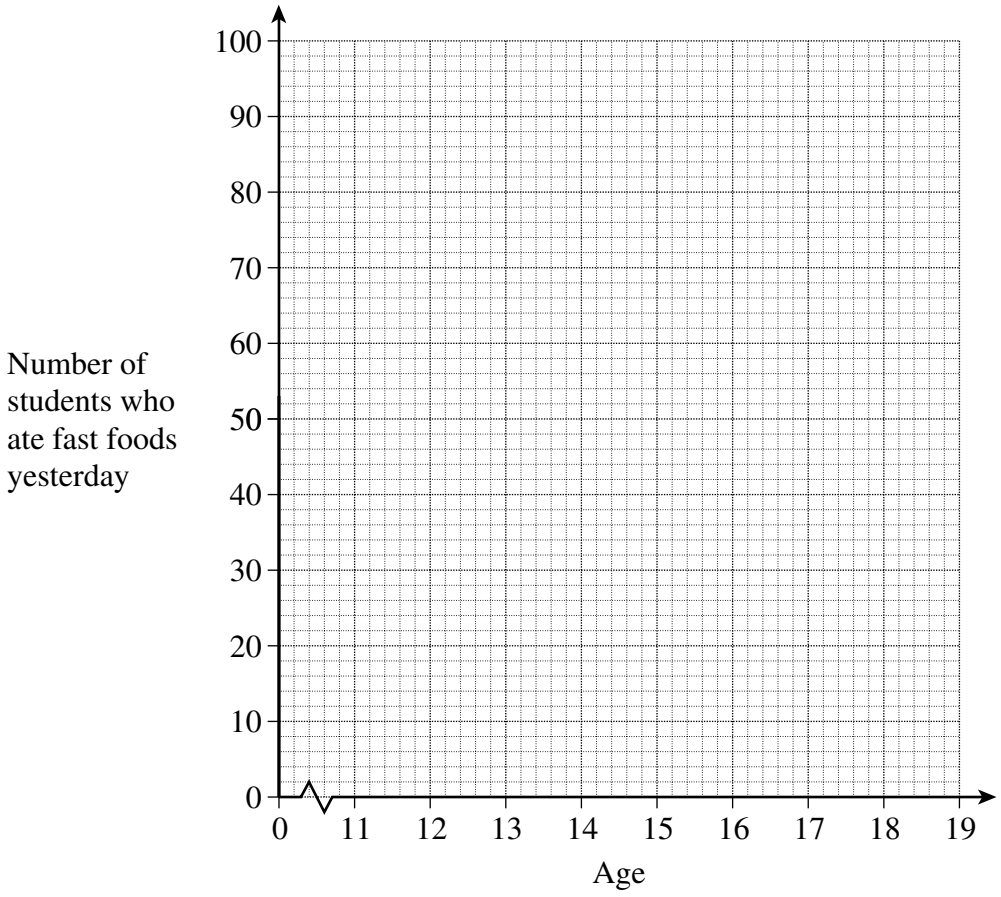
(2 marks)

(c) Joe surveyed 100 students from each age group at his school.
The table shows Joe's results.

Age group	Number of students who ate fast foods yesterday
11 to less than 13	64
13 to less than 15	88
15 to less than 17	56
17 to less than 19	24

Draw a frequency polygon for this data.

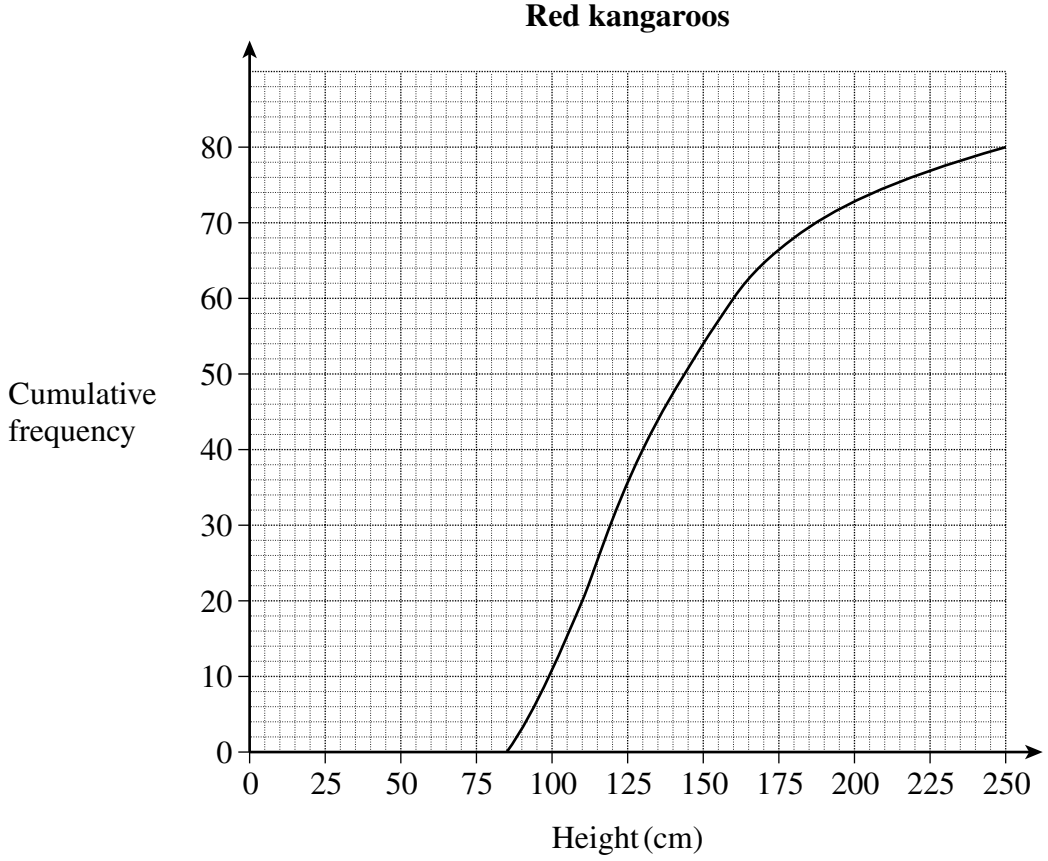


(2 marks)

5

Turn over for the next question

9 The cumulative frequency diagram of the heights of 80 red kangaroos is shown below.



The table below summarises the heights of 80 grey kangaroos.

Grey kangaroos

Lower quartile	Median	Upper quartile
85 cm	105 cm	120 cm

Explain why the heights of the grey kangaroos are more consistent than the heights of the red kangaroos.
You **must** show your working.

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(4 marks)

END OF QUESTIONS

4