Surname		Other Names	
Centre Number			Candidate Number	
Candidate Signature			

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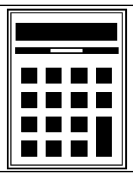
General Certificate of Secondary Education
November 2006

ASSESSMENT and QUALIFICATIONS ALLIANCE

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

Monday 13 November 2006 1.30 pm to 1.55 pm

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



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

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.

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

1 The number of visitors to a garden centre is recorded for 20 days.
The results are shown in the ordered stem-and-leaf diagram.

Key 5 | 2 represents 52 visitors

5	2	3	6	8	9		
6	0	1	2	3	5	7	8
7	0	3	4	6	8	9	
8	1	3					

(a) What was the greatest number of visitors to the garden centre on one day?

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

(b) Calculate the median number of visitors to the garden centre.

.....

.....

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

3

Turn over for the next question

2 A snack bar only sells crisps, chocolate bars, drinks and fruit.
Every day Moneeb buys one item from the snack bar.
The table shows the probabilities of Moneeb buying certain items.

Snack	**Probability**
Crisps	0.50
Chocolate bar	0.25
Drink	0.15
Fruit	

(a) What is the probability that Moneeb buys a chocolate bar or a drink?

.....

.....

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

(b) What is the probability that Moneeb buys fruit?

.....

.....

.....

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

4

3 In January, 50 new members of a fitness club were timed when completing a set of exercises. Their results are summarised in the table.

January

Time, *t* (seconds)	**Frequency**
$100 \leqslant t < 120$	18
$120 \leqslant t < 140$	12
$140 \leqslant t < 160$	15
$160 \leqslant t < 180$	5

(a) Calculate an estimate of the mean time.

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.....

Answer ..... seconds *(4 marks)*

(b) In February and March the same members were timed again completing the same set of exercises.
Their results are summarised below.

	February	**March**
Mean time (seconds)	114	107
Range of times (seconds)	95	98

Write down **two** comparisons between the times for February and March.

Comparison 1 .....

.....

.....

Comparison 2 .....

.....

.....

(2 marks)

6

Turn over ▶

4 100 students recorded the number of hours in a week they spent using a computer. The table shows the results.

Number of hours	Frequency
0 to less than 5	17
5 to less than 10	23
10 to less than 15	18
15 to less than 20	16
20 to less than 25	15
25 to less than 30	11

(a) Which class interval is the modal class?

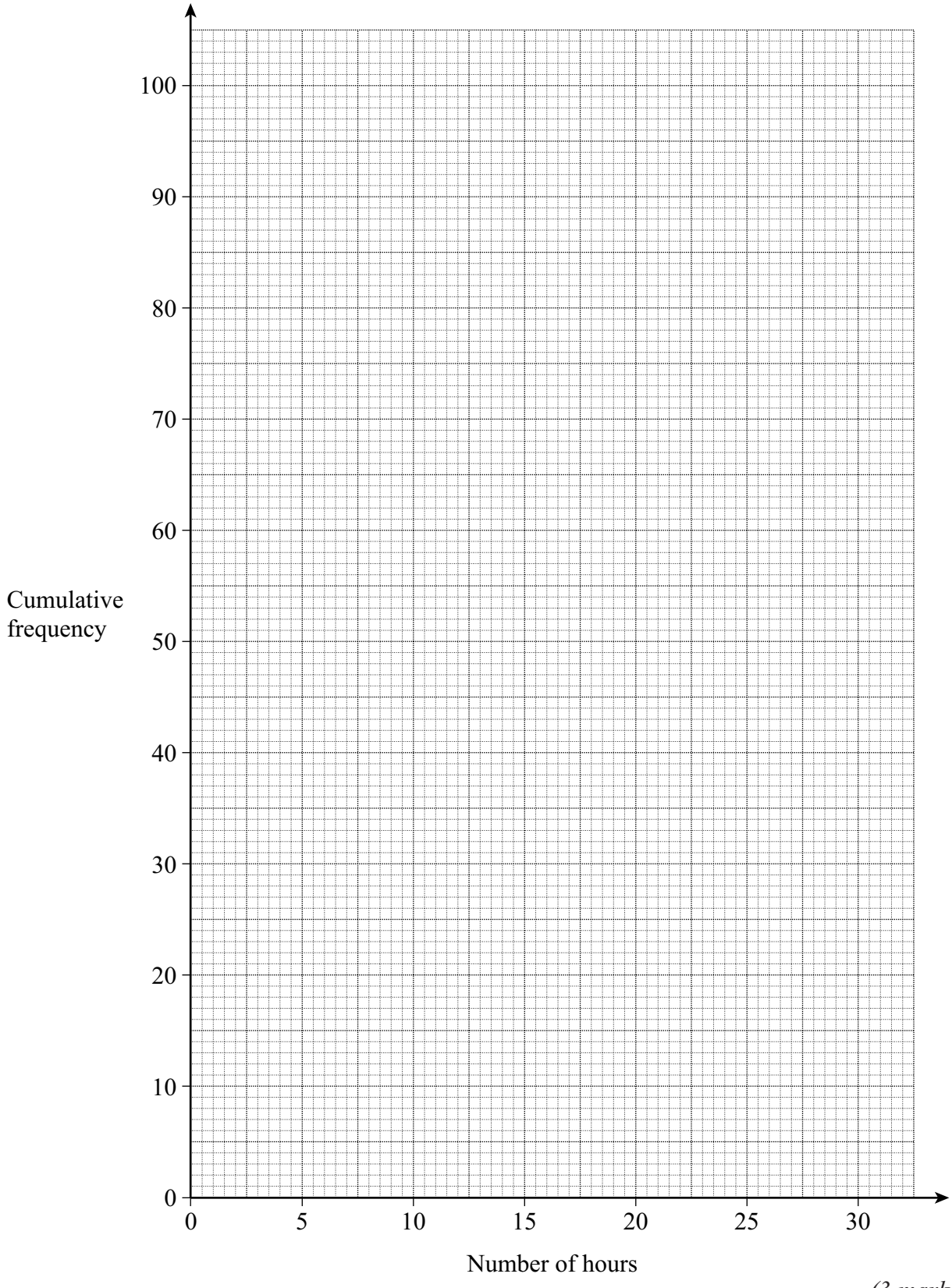
Answer ..... *(1 mark)*

(b) Complete the cumulative frequency table below.

Number of hours	Cumulative frequency
Less than 5	17
Less than 10	40
Less than 15	
Less than 20	
Less than 25	
Less than 30	

(1 mark)

(c) Draw a cumulative frequency diagram on the grid opposite.



(3 marks)

(d) Use your graph to estimate the number of students who spent more than 17 hours using a computer.

.....

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

7

END OF SECTION A

There are no questions printed on this page

Surname		Other Names	
Centre Number			Candidate Number				
Candidate Signature									

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General Certificate of Secondary Education
November 2006

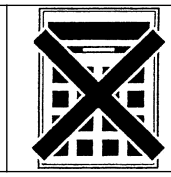
ASSESSMENT and QUALIFICATIONS ALLIANCE

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

Monday 13 November 2006 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 book.

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

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

5 (a) The total profit from a school play was £720.
The table shows how the profit was raised.

	Profit (£)
Tickets	320
Refreshments	250
Car park	150
Total	720

Draw and label a pie chart to show this information.

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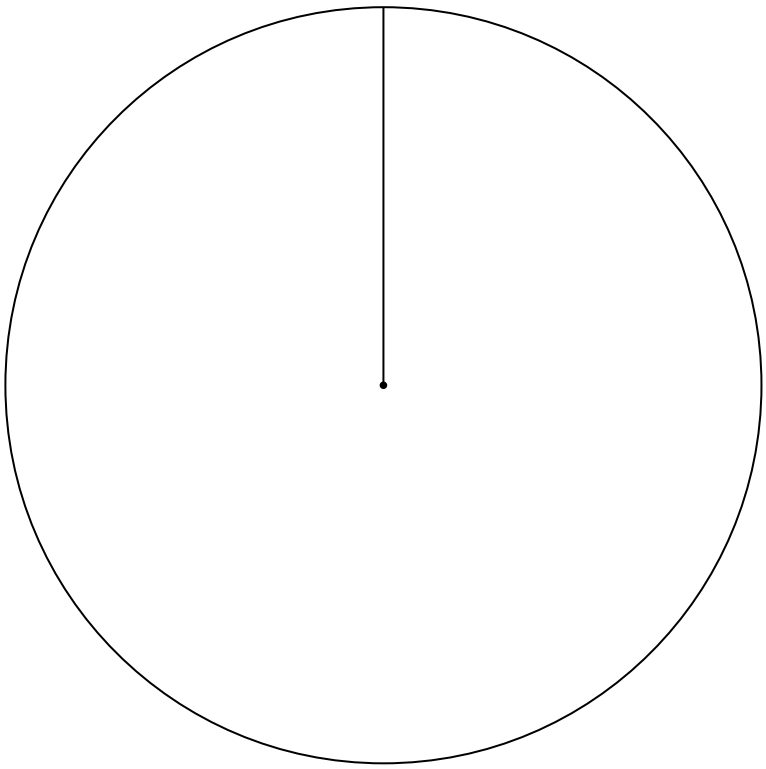
Profit from school play



(4 marks)

(b) A questionnaire was given to each person in the audience.
Here is one of the questions.

Did you think the play was	very good	good	or	fairly good?
Tick one box.	☐	☐		☐

Explain why this is not suitable.

.....

.....

(1 mark)

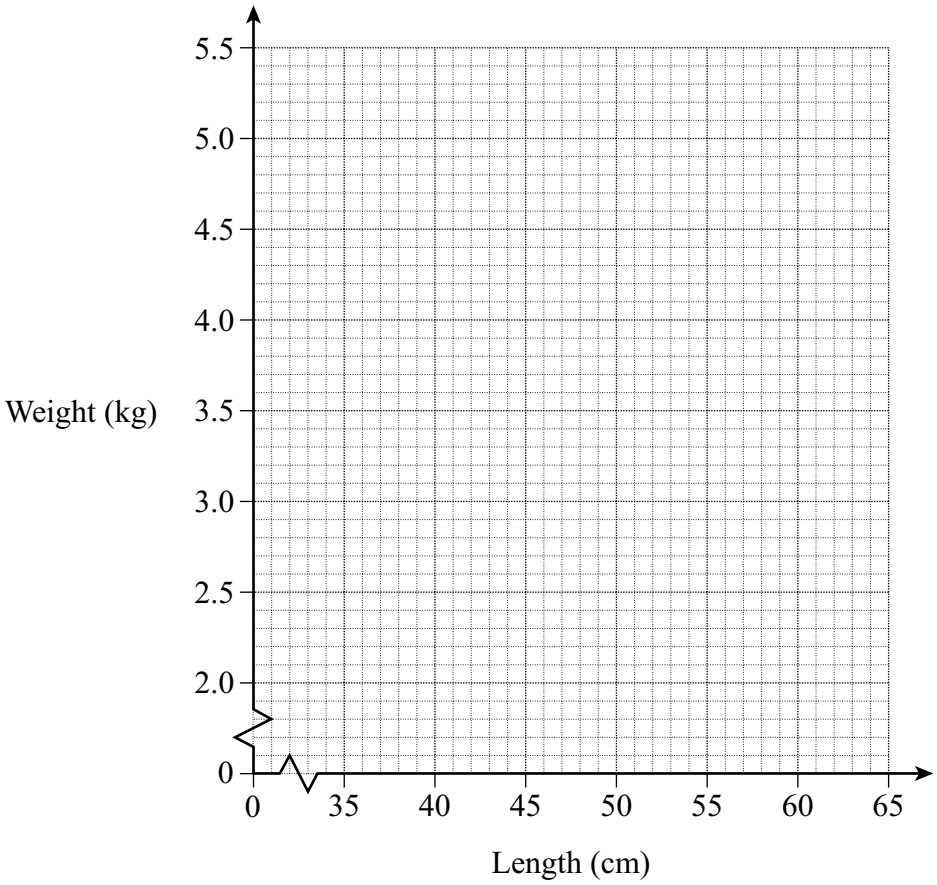
5

Turn over for the next question

6 The table shows the lengths, in centimetres (cm), and the weights, in kilograms (kg), of eight newborn babies.

Length (cm)	40	44	48	50	52	56	57	58
Weight (kg)	2.0	2.6	3.1	3.7	3.5	4.5	4.2	4.9

(a) Draw a scatter graph to show this information.



(2 marks)

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

(1 mark)

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

.....

.....

.....

(1 mark)

(d) Use your line of best fit to estimate the weight of a newborn baby whose length is 54 cm.

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

5

7 Phil wants to test if a six-sided dice is biased.
He rolls the dice 20 times.
Here are his results.

2	3	5	6	1	2	4	5	6	2
3	4	2	1	2	3	5	6	2	1

(a) Complete the relative frequency table.

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Number	1	2	3	4	5	6
Relative frequency						

(2 marks)

(b) Phil concludes that the dice is biased towards a number.

Write down the number that you think the dice is biased towards.
Explain your answer.

Number .....

Explanation .....

.....

.....

(1 mark)

(c) Phil decides to roll the dice 100 times.
Calculate an estimate of the number of times that the dice will land on 4.

.....

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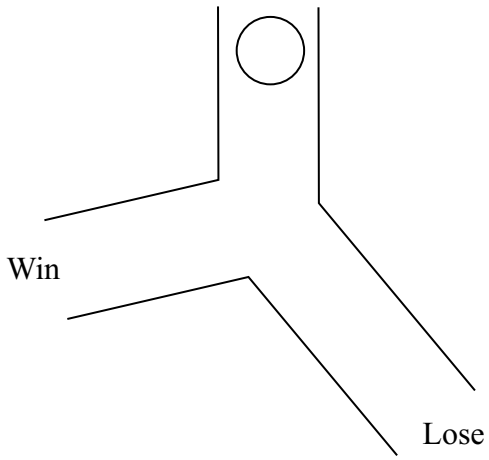
Answer ..... *(2 marks)*

5

8 In a game a ball is dropped down a chute as shown in the diagram.

The ball falls into either the Win slot or the Lose slot.

The probability that the ball falls into the Win slot is always $\frac{3}{10}$



Andrea plays the game twice.

(a) Draw a tree diagram to show the outcomes and the probabilities.

(3 marks)

(b) Calculate the probability that Andrea loses both times.

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

5

END OF QUESTIONS

There are no questions printed on this page