Surname					Other Names							
Centre Number						Candidate Number						
Candidate Signature												

AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

MATHEMATICS (MODULAR) (SPECIFICATION B)   **33003/HA**
Module 3   Higher Tier Section A

H

Wednesday 28 June 2006   9.00 am to 9.40 am

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

For Examiner's Use			
Section A		**Section B**	
Pages	Mark	Pages	Mark
2−3		2−3	
4−5		4−5	
		6−7	
Total Section A			
Total Section B			
TOTAL			
Examiner's Initials			

Time allowed for Section A: 40 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 40 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 32.
- 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.

33003/HA

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

1 (a) Roma invests £400 for three years at 4% compound interest.

Show that, at the end of the three years, she has a total investment of £449.95 to the nearest penny.

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(3 marks)

(b) Calculate the percentage increase from £400 to £449.95

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

2 Vivian and Jack shared the driving to their holiday cottage in the ratio 3 : 5
Jack drove further than Vivian.
The total distance travelled was 440 miles.

How far did Jack drive?

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

3 There are 22 million houses in the United Kingdom.

(a) On average each of these 22 million houses has a value of £82 000.

What is the total value of all these houses?
Give your answer in standard form.

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Answer £ .... *(2 marks)*

(b) 7700 of the 22 million houses have a value of over £1 million.

What percentage of the total number of houses has a value of over £1 million?
Give your answer in standard form.

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

4 A DVD player is on sale at £97.20
This is a 10% reduction of the previous price.

What was the price of the DVD player before the reduction?

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Answer £ .... *(3 marks)*

16

Turn over ▶

5 In a motor company the sales staff are paid a weekly bonus according to how many cars they sell in that week.

The bonus paid (B) is proportional to the square of the number of cars sold (N).

(a) Lydia sells three cars in a week.
She receives a bonus (B) of £180.

Show that the equation connecting B and N is $B = 20N^2$

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(2 marks)

(b) Complete the bonus table.

Number of cars sold per week (N)	Bonus (B), £
0	0
1	
2	
3	180
4	
5	

(2 marks)

(c) Tyrone said that his bonus for the last two weeks was a total of £810.
Peter said that was not possible.
Peter said, "Your bonus could have been £800 or £820 but not £810."

Show that Peter is correct.

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(3 marks)

6 Rationalise the denominator of $\dfrac{12}{\sqrt{18}}$

Simplify your answer as much as possible.

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Answer .... *(4 marks)*

7 Jose has 10 bottles containing fizzy drink.
Each bottle contains 2 litres of fizzy drink to the nearest 10 millilitres.
He pours the drink into cups.
Each cup holds 210 millilitres to the nearest 5 millilitres.

What is the maximum number of cups that he can fill?

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Answer .... *(5 marks)*

END OF SECTION A

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