Surname		Other Names	
Centre Number			Candidate Number									
Candidate Signature												

For Examiner's Use

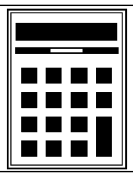
General Certificate of Secondary Education
June 2007

ASSESSMENT and QUALIFICATIONS ALLIANCE

MATHEMATICS (MODULAR) (SPECIFICATION B) 33003/IA
Module 3 Intermediate Tier Section A

Wednesday 27 June 2007 9.00 am to 9.40 am

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



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. This 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**	
Pages	Mark	Pages	Mark
2–3		2–3	
4–5		4–5	
6		6–7	
		8	
Total Section A			
Total Section B			
TOTAL			
Examiner's Initials			

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

1 1.4 kilograms of apples costs £1.61

How much does 1 kilogram of apples cost?

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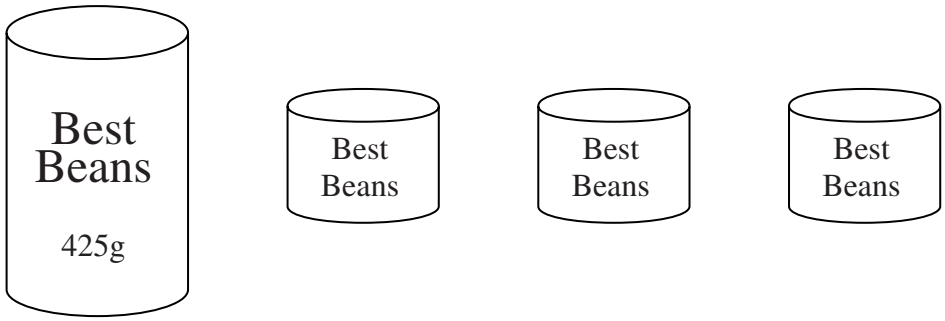
Answer £ ..... *(2 marks)*

2 The total weight of one large and three small cans of Best Beans is 920 grams.
The large can weighs 425 grams.



Work out the weight of one small can.

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

3 Use your calculator to work out

(a) 2.4^3

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

(b) the square root of 2401

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

(c) $\dfrac{7.6 \times 18}{3.8 + 2.4}$

(i) Write down your full calculator display.

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

(ii) Write your answer to one decimal place.

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

Turn over for the next question

9

4 A single room in a hotel in France costs 385 euros for one week.

(a) If 1 euro = 68 pence, how much is 385 euros in £?
Give your answer to the nearest £.

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Answer £ ..... *(4 marks)*

(b) The cost of a single room increases by 12% when breakfast is included.

How many euros will it cost for a single room for one week when breakfast is included?

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

(c) Sunil drives 164 kilometres to the hotel.
His journey takes 2 hours 30 minutes.

Work out his average speed.
Give your answer in kilometres per hour.

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Answer ..... kilometres per hour *(3 marks)*

5 (a) Alex weighs 43 kilograms to the nearest kilogram.

Write down her minimum weight.

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

(b) Alex's height is 130 centimetres to the nearest 10 centimetres.

Write down her minimum height.

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

6 A shop decreases the price of a coat from £75 to £63.

Work out the percentage decrease.

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

Turn over for the next question

15

7 On Friday the ratio of the time Priya is sleeping to the time she is awake is 3 : 5
She is sleeping for less time than she is awake.

(a) Work out the number of hours that she is sleeping on Friday.

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

(b) On Saturday she sleeps for one hour more than she did on Friday.

Show that the ratio of the time she is sleeping to the time she is awake on Saturday is 5 : 7

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(3 marks)

8 (a) Write 98 million in standard form.

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

(b) Multiply 2.4×10^{-3} by 3.6×10^{-5}

Give your answer in standard form.

.....

.....

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

END OF SECTION A

8

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General Certificate of Secondary Education
June 2007

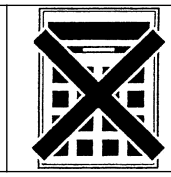
ASSESSMENT and QUALIFICATIONS ALLIANCE

MATHEMATICS (MODULAR) (SPECIFICATION B) 33003/IB
Module 3 Intermediate Tier Section B

Wednesday 27 June 2007 9.45am to 10.25 am

For this paper you must have:
- mathematical instruments.

You must **not** use a calculator.



Time allowed for Section B: 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.
- 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 32.
- The marks for questions are shown in brackets.
- You may ask for more answer paper. This 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.

9 Here is a bus timetable for the journey between Grassenham and Aggbury.

Grassenham	08 45
Bowland	09 03
Shelby	09 19
Wexton	09 28
Aggbury	09 36

How many minutes does the journey from Grassenham to Wexton take?

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

10 There are 24 passengers on a bus.

$\frac{1}{4}$ of the passengers are men.

$\frac{1}{3}$ of the passengers are women.

The rest of the passengers are children.

How many passengers are children?

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

11 (a) Multiply –6 by 2.

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

(b) Work out $-15 \div -5$

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

(c) Work out 0.6×0.1

.....

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

(d) Write down the value of the square of 15.

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

(e) Work out $\frac{3}{8} \div \frac{1}{3}$

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

Turn over for the next question

12 Football teams are given points after each match they play, as shown.

Win	3 points
Draw	1 point
Lose	0 points

(a) Pam's team has played eight matches.
They have won four matches, drawn three matches and lost one match.

How many points in total has her team been given?

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

(b) Milly's team has played 10 matches and has been given 17 points.

(i) Work out the **two** ways that her team could have been given 17 points.

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First way

Number of matches won	
Number of matches drawn	
Number of matches lost	

Second way

Number of matches won	
Number of matches drawn	
Number of matches lost	

(2 marks)

(ii) Milly says that after two more matches the total points will still be an odd number.

Explain why she may **not** be correct.

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(1 mark)

13 For every £50 spent on petrol, £37 of this is tax.

(a) Work out £37 as a percentage of £50.

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

(b) Colin spends £10 on petrol.

How much of this is tax?

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Answer £ ..... *(2 marks)*

Turn over for the next question

14 (a) Express 100 as the product of prime factors.
Write your answer in index form.

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

(b) You are given that $56 = 2^3 \times 7$

Express 112 as the product of prime factors.
Write your answer in index form.

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

15 Simon uses this method to work out $87\frac{1}{2}$ % of 240.

$$\begin{aligned} 50\ \%\ \text{of}\ 240 &= 120 \\ 25\ \%\ \text{of}\ 240 &= 60 \\ 12\tfrac{1}{2}\ \%\ \text{of}\ 240 &= 30 \\ \text{Adding}\quad 87\tfrac{1}{2}\ \%\ \text{of}\ 240 &= 210 \end{aligned}$$

(a) Use Simon's method to work out $87\frac{1}{2}$ % of 96.
You **must** show your working.

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

(b) Pete says that he can work out $93\frac{3}{4}$ % of 240 by using Simon's method with one extra step.

Explain how Pete can do this.

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(2 marks)

Turn over for the next question

16 (a) Write down the value of $(\sqrt{7})^2$

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

(b) Work out $\dfrac{5^9 \times 5^2}{5^3}$

Give your answer as a power of 5.

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

(c) Write 0.00025 in standard form.

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

END OF QUESTIONS