Surname		Other Names	
Centre Number			Candidate Number				
Candidate Signature									

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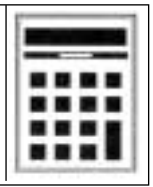
General Certificate of Secondary Education
March 2003

ASSESSMENT and QUALIFICATIONS ALLIANCE

MATHEMATICS (MODULAR) (SPECIFICATION B) 33003/IA
MODULE 3 INTERMEDIATE TIER SECTION A

Tuesday 4 March 2003 9.00 am to 9.40 am

In addition to this paper you will require:
- a calculator
- a treasury tag.



Time allowed for Section A: 40 minutes

Instructions
- Use blue or black ink or ball-point pen. Diagrams should be drawn in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- Do all rough work in this booklet.
- 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, make sure that you hand in **both** Section A and Section B securely tagged together with Section A on top.

Information
- The maximum mark for Section A is 32.
- Mark allocations are shown in brackets.
- Additional answer paper will be issued on request and must be tagged securely to this answer booklet.
- You are expected to use a calculator where appropriate.

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

For Examiner's Use			
Section A		Section B	
Page	Mark	Page	Mark
2-3		2-3	
4-5		4-5	
6			
Total Section A			
Total Section B			
TOTAL			
Examiner's Initials			

LEAVE MARGIN BLANK

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

1 Mary buys a kitchen for £5390.
She pays a deposit of £539.
Mary pays the rest of the cost in 12 equal instalments.

How much is each instalment?

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.....

Answer £. ..... *(3 marks)*

2 Fred states that the sum of two consecutive numbers is always even.

Give an example to show that Fred is **not** correct.

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(2 marks)

3 Dave drives 15 miles to work.
The journey takes 20 minutes.

What is Dave's average speed in miles per hour?

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

4 Pauline goes on holiday.
She changes £200 into Euros (□).
The exchange rate is £1 = □1.7

(a) How many Euros does Pauline receive for £200?

.....

.....

Answer □ ..... *(2 marks)*

(b) Pauline spends one quarter of her Euros on presents.

How many Euros does she spend on presents?

.....

.....

Answer □ ..... *(2 marks)*

(c) A bag is priced at □68.
In a sale, this price is reduced by 25%.
Pauline buys the bag.

How much does she save?
Give your answer in pounds.

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.....

.....

Answer £ ..... *(4 marks)*

16

5 36 expressed as a product of its prime factors is $2^2 \times 3^2$

(a) Express 45 as a product of its prime factors.
Write your answer in index form.

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

(b) What is the Highest Common Factor (HCF) of 36 and 45?

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

(c) What is the Least Common Multiple (LCM) of 36 and 45?

.....

.....

.....

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

6 In a class of 28 pupils, the ratio of girls to boys is 3 : 4

How many of the pupils are

(a) girls?

.....

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

(b) boys?

.....

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

7 There are 10 windmills in a line up a hillside.
Each windmill produces 20% more energy than the one below it.
The first windmill, the lowest on the hillside, produces 1.7 megawatts of energy.

(a) How much energy does the second windmill produce?

.....

.....

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

(b) How many of the windmills each produce more than 3 megawatts of energy?

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

12

8 Brian sends an e-mail of size 5 242 880 bytes.

(a) Write this number in standard form.

.....

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

(b) Brian then sends a second e-mail of size 5.88×10^6 bytes.

Calculate how much larger his second e-mail is than his first e-mail.
Express your answer as a percentage of the size of the first e-mail.

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

END OF SECTION A

4

Surname		Other Names	
Centre Number			Candidate Number				
Candidate Signature									

General Certificate of Secondary Education
March 2003

ASSESSMENT and QUALIFICATIONS ALLIANCE

MATHEMATICS (MODULAR) (SPECIFICATION B) 33003/IB
MODULE 3 INTERMEDIATE TIER SECTION B

I

Tuesday 4 March 2003 9.45 am to 10.25 am

No additional materials are required.

You must **not** use a calculator.

Time allowed for Section B: 40 minutes

Instructions
- Use blue or black ink or ball-point pen. Diagrams should be drawn in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- Do all rough work in this booklet.
- 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, make sure that you hand in **both** Section A and Section B securely tagged together with Section A on top.

Information
- The maximum mark for Section B is 32.
- Mark allocations are shown in brackets.
- Additional answer paper will be issued on request and must be tagged securely to this answer booklet.

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

LEAVE MARGIN BLANK

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

9 (a) Jake earns £4 an hour for a basic 35 hour week.
He earns £6 an hour for overtime.
One week he works the basic 35 hour week and 2 hours overtime.

How much does he earn altogether?

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Answer £..... *(4 marks)*

(b) One morning, Jake works from 0815 to 1210.

How long does he work?
Give your answer in hours and minutes.

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

10 Use the calculation

$$58.5 \times 27 = 1579.5$$

to write down the answer to

(a) 585×27

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

(b) $1579.5 \div 27$

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

(c) 585×0.027

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

11 The cost of 30 bottles of water is £21.

(a) What is the cost of 45 bottles of water?

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

(b) The cost of the bottles of water increases by 5%.

Increase £21 by 5%.

.....

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Answer £..... *(3 marks)*

15

12 Jenny buys a CD for £16.50
Six months later Jenny sells the CD for £13.20

What is the percentage decrease in the value of the CD?

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

13 A bag of potatoes weighs 9 kg to the nearest kilogram.

Write down the least possible weight of the bag of potatoes.

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

14 Find an approximate value of $\frac{421 \times 2.9}{0.197}$

You **must** show all your working.

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

15 In a school one Monday morning, 20% of the pupils are in the hall for an assembly. The other 560 pupils present that morning are not in the assembly.

Find the total number of pupils present that morning.

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.....

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

16 (a) Write down a fraction that is between $\frac{1}{2}$ and $\frac{3}{4}$

.....

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

(b) Work out $3.2 \times 10^5 - 2.89 \times 10^4$
Give your answer in standard form.

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

(c) Work out $3\frac{1}{4} - 1\frac{2}{5}$

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

17

END OF QUESTIONS