

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

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General Certificate of Secondary Education  
November 2004



**MATHEMATICS (MODULAR) (SPECIFICATION B)**  
**Module 3 Intermediate Tier Section A**

**33003/IA**

Wednesday 17 November 2004 9.00 am to 9.40 am

<p><b>In addition to this paper you will require:</b></p> <ul style="list-style-type: none"> <li>• a calculator</li> <li>• mathematical instruments</li> <li>• a treasury tag.</li> </ul>	
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For Examiner's Use			
Section A		Section B	
Pages	Mark	Pages	Mark
2 – 3		2 – 3	
4 – 5		4 – 5	
6		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 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 tag Section A and Section B 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.

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

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- 1** In France, Chris pays €18 for a meal.  
The exchange rate is £1 = €1.60

What is the price of the meal in pounds?

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Answer £ ..... (2 marks)

- 2** Steve has a ribbon 4 metres long.  
He says, "I need 6 pieces each 72 centimetres long."

Will Steve have enough ribbon?  
Explain your answer.

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(3 marks)

- 3 Rick buys a drink costing £1.35 and some packets of sweets costing 65 pence for each packet.  
The total cost is £3.95

How many packets of sweets does Rick buy?

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Answer ..... (3 marks)

- 4 (a) An athlete runs 15 miles at an average speed of 6 miles per hour.

How long does he take to run the 15 miles?  
Give your answer in hours and minutes.

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Answer ..... hours ..... minutes (3 marks)

- (b) Another athlete runs 18 miles in  $2\frac{1}{4}$  hours.

What is her average speed?

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Answer ..... (3 marks)

Turn over ►

- 5** Last year a company had 80 employees.  
This year the number of employees is 35% more.

How many employees are there this year?

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Answer ..... (3 marks)

- 6** In a school, there are 750 pupils in total in years 9, 10 and 11.  
The numbers of pupils in years 9, 10 and 11 are in the ratio 12:7:6

How many pupils are there in each year?

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.....

.....

Answer    Year 9 .....

Year 10 .....

Year 11 .....

(3 marks)

- 7** Calculate  $\frac{35.6^2}{23.8 \times 22.6}$

(a) Write down your full calculator display.

Answer ..... (1 mark)

(b) Give your answer to 3 significant figures.

Answer ..... (1 mark)

- 8 Barbara put £15 000 in a savings account on January 1st 2001.  
Interest of 2% is added to the account on December 31st each year.

(a) How much is in the account on December 31st 2001?

.....

.....

Answer £ ..... (2 marks)

(b) Explain why the amount in the account after three years is  $£15\,000 \times 1.02^3$

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(2 marks)

- 9 A shop is selling a hairdryer at a special price.

**SPECIAL OFFER!**

**HAIRDRYER**

$\frac{1}{3}$  OFF NORMAL PRICE

**NOW ONLY £24.60**

What is the normal price of the hairdryer?

.....

.....

.....

Answer £ ..... (3 marks)

Turn over ►

- 10** The population of France is  $5.83 \times 10^7$  people.  
The area of France is  $5.47 \times 10^5$  square kilometres.

$$\text{Mean number of people} = \frac{\text{Population}}{\text{Area}}$$

Calculate the mean number of people per square kilometre in France.  
Give your answer to a suitable degree of accuracy.

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Answer ..... (3 marks)

**END OF SECTION A**

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General Certificate of Secondary Education  
November 2004



**MATHEMATICS (MODULAR) (SPECIFICATION B)  
Module 3 Intermediate Tier Section B**

**33003/IB**

Wednesday 17 November 2004 9.45 am to 10.25 am



<p><b>In addition to this paper you will require:</b> mathematical instruments. You must <b>not</b> use a calculator.</p>	
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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 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 tag Section A and Section B 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.

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

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**11** There are 30 pupils in a class.

The number of pupils in the class on a school trip is 24.

(a) What percentage of the class are on the school trip?

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Answer ..... % (2 marks)

(b) On the trip, 18 pupils go on a ride costing £2.15 each.

Estimate the cost of the 18 rides.

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Answer £ ..... (2 marks)

**12** Work out

(a)  $2.7 - 1.75$

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Answer ..... (1 mark)

(b)  $0.2 \times 0.4$

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Answer ..... (1 mark)

(c)  $\frac{1}{3} \times \frac{4}{5}$

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Answer ..... (1 mark)

(d)  $5^3$

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.....

Answer ..... (1 mark)

**Turn over** ►

- 13** The table shows the amounts of tomatoes, onions and water needed to make tomato sauce for 4 people.

Fill in the amounts needed to make tomato sauce for 10 people.

	<b>4 people</b>	<b>10 people</b>
Tomatoes	200 g	..... g
Onions	2	5
Water	50 ml	..... ml

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.....

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(2 marks)

- 14** A map has a scale of 1:5000  
On the map, the length of a sports field is 3 cm.

What is the actual length of the sports field?  
Give your answer in metres.

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Answer ..... m (3 marks)

**15** You are given that

$$227.5 \div 35 = 6.5$$

Find the value of

(a)  $6.5 \times 3.5$

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Answer ..... (1 mark)

(b)  $227.5 \div 350$

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Answer ..... (1 mark)

(c)  $2275 \div 0.35$

.....

Answer ..... (1 mark)

**16** Express 120 as the product of its prime factors.  
Give your answer in index form.

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Answer ..... (3 marks)

Turn over ►

- 17** (a) In 1974 the number of students in a college was 5000.  
This year the number of students is 5750.

What is the percentage increase in the number of students in the college?

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.....

Answer ..... % (3 marks)

- (b) Another college has 6300 students, correct to the nearest hundred.

- (i) What is the least possible number of students in this college?

Answer ..... (1 mark)

- (ii) What is the greatest possible number of students in this college?

Answer ..... (1 mark)

- 18** (a) Work out  $\frac{1}{3} \div \frac{1}{9}$

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Answer ..... (2 marks)

(b) Find the value of

(i)  $\sqrt{169}$

.....

Answer ..... (1 mark)

(ii)  $\sqrt{2^2 \times 3^4}$

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Answer ..... (2 marks)

**19** Kate is baking two loaves of bread.

One loaf needs  $1\frac{1}{4}$  cups of milk.

Kate only has  $1\frac{2}{3}$  cups of milk.

How much more milk does Kate need?

Give your answer as a fraction of a cup.

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Answer ..... (3 marks)

**END OF QUESTIONS**