

Surname						Other Names					
Centre Number						Candidate Number					
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For Examiner's Use

General Certificate of Secondary Education
November 2007



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

33003/IA

Monday 12 November 2007 9.00 am to 9.40 am

<p>For this paper you must have:</p> <ul style="list-style-type: none"> • a calculator • mathematical instruments • a treasury tag. 	
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For Examiner's Use			
Section A		Section B	
Pages	Mark	Pages	Mark
2-3		2-3	
4-5		4-5	
		6-7	
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. 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.

1 (a) Write down a two-digit square number larger than 50.

Answer (1 mark)

(b) Write down a two-digit prime number smaller than 20.

Answer (1 mark)

2 Work out

(a) the cube of 4

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.....

Answer (1 mark)

(b) $\frac{4}{0.2^3}$

.....
.....

Answer (2 marks)

3 At Sarah's school there are 259 students in Year 10.
There are 9 tutor groups in Year 10.
All the tutor groups in Year 10 have 29 students in them except Sarah's.

How many students are in Sarah's tutor group?

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.....
.....
.....

Answer (4 marks)



4 Calculate $\frac{2.8 + 6.1}{9.7 - 1.8}$

(a) Write down your full calculator display.

Answer (1 mark)

(b) Write your answer to part (a) to the nearest thousandth.

Answer (1 mark)

5 A watch in England costs £60.
The same watch in France costs €100.
The exchange rate is £1 = €1.65

In which country is the watch cheaper and by how much?
You **must** show your working.
State the units of your answer.

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Answer (4 marks)

6 Decrease 800 by 39%.

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.....

Answer (3 marks)



7 The Least Common Multiple (LCM) of two numbers is 36.

Find one possible pair for the two numbers.

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.....

Answer and (2 marks)

8 (a) An empty flower pot weighs 600 g.
The weight of the flower pot increases to 1.9 kg when filled with soil.

Calculate the percentage increase in the weight of the flower pot.
Give your answer to one significant figure.

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Answer % (4 marks)

(b) A different flower pot is 12% heavier when empty but holds 10% less soil.

Calculate the weight of this flower pot when it is full of soil.

.....
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.....
.....
.....

Answer g (4 marks)



9 Find the largest number and the smallest number from this list.

3×10^{-2}

82 000

9×10^3

0.114

.....

.....

Largest

Smallest (2 marks)

10 Show that the product of two consecutive integers is always even.

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(2 marks)

END OF SECTION A



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General Certificate of Secondary Education
November 2007



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

33003/IB

Monday 12 November 2007 9.45 am to 10.25 am

<p>For this paper you must have:</p> <ul style="list-style-type: none"> mathematical instruments. <p>You must not 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.
- 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.

11 (a) Write down the answer to

(i) $3 - 9$

Answer (1 mark)

(ii) -2×6

Answer (1 mark)

(iii) $-14 \div -7$

Answer (1 mark)

(b) Work out $\frac{3}{20}$ as a percentage.

.....

.....

Answer % (2 marks)



13 Work out $\frac{2}{5}$ of $\frac{3}{11}$

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.....

Answer (2 marks)

14 You are given that $123 \times 456 = 56088$

Find

(a) $56088 \div 45.6$

.....
.....

Answer (1 mark)

(b) 246×4560

.....
.....

Answer (2 marks)



15 Roger needs $1\frac{2}{3}$ balls of wool to knit one jumper.

(a) He wants to knit two jumpers.

How many balls of wool does he need to buy?

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.....
.....

Answer (2 marks)

(b) A different type of jumper needs $1\frac{1}{4}$ balls of wool.

Bethany says that she can knit one of each type of jumper using less than three balls of wool.

Is Bethany correct?
You **must** show your working.

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(3 marks)

Turn over for the next question



16 (a) A number when written as a product of prime factors in index form is $2^4 \times 3^2$.

Work out the number.

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.....

Answer (2 marks)

(b) What is the Highest Common Factor (HCF) of 150 and 400?

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.....

Answer (1 mark)

17 A school running track is 400 metres long to the nearest metre.
Dexter runs a two kilometre race on this track.

What is the minimum distance Dexter runs during the race?

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.....
.....

Answer m (3 marks)



18 Find the value of

(a) $(\sqrt{7})^2$

.....

Answer (1 mark)

(b) 9^{-2}

.....

.....

Answer (1 mark)

19 The area of Canada is 9 220 970 square kilometres.
The population of Canada is estimated to be 3.58×10^7 .

$\text{Number of people per square kilometre} = \frac{\text{Number of people}}{\text{Area in square kilometres}}$

Use approximations to estimate the number of people per square kilometre in Canada.
You **must** show your working.

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Answer (3 marks)

END OF QUESTIONS



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