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Centre Number						Candidate Number					
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General Certificate of Secondary Education
November 2006



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

33003/IA

Monday 13 November 2006 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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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	
Total Section A			
Total Section B			
TOTAL			
Examiner's Initials			

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

- 1 (a) Work out $25 - (11 + 6)$

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.....

Answer (1 mark)

- (b) Insert brackets to make this calculation correct.

$$15 - 6 \times 2 = 18$$

.....

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(1 mark)

- 2 (a) In 1986 the price of a mobile phone was £1055.
In 2004 a mobile phone cost 5% of the price of a mobile phone in 1986.

Calculate the cost of a mobile phone in 2004.

.....

.....

.....

Answer £ (2 marks)

- (b) Write your answer to the nearest £5.

Answer £ (1 mark)

3 A school raises £660 from a sponsored walk.

- (a) $\frac{1}{4}$ of the money is spent on books.

The rest of the money is spent on sports equipment.

How much money is spent on sports equipment?

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Answer £ (2 marks)

- (b) The £660 was raised by teachers, parents and pupils in the ratio 2 : 3 : 7
The pupils raised the largest amount of money.

How much money did the pupils raise?

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Answer £ (3 marks)

4 You are given that

1 litre = 1.76 pints and 1 gallon = 8 pints

Convert 25 litres to gallons.
Show your working.

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Answer gallons (3 marks)

- 5** Erin is squaring numbers.
She says that it is possible to get an answer that is smaller than the number she started with.

Show that Erin is correct.

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(2 marks)

- 6** Use your calculator to work out

(a) 2^8

Answer *(1 mark)*

- (b) the reciprocal of 0.8

Answer *(1 mark)*

(c) $\sqrt{6.4^2 + 3.18^3}$

- (i) Write down the full calculator display.

Answer *(1 mark)*

- (ii) Write your answer to 2 significant figures.

.....

Answer *(1 mark)*

- 7 (a) Alice sees two advertisements for the same MP3 player.

CutPrices
£80
Price does not include VAT

The Audio Store
£92
Price includes VAT

The rate of VAT is $17\frac{1}{2}\%$.

Alice works out that the MP3 player costs more at CutPrices than at The Audio Store.

How much more does it cost at CutPrices?

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Answer £ (3 marks)

- (b) In a sale the price of a digital radio decreases from £75 to £66.

Work out the percentage decrease in price.

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Answer % (3 marks)

- (c) In a sale the price of a CD player decreases by 60%.
The sale price is £18.60

Work out the price before the sale.

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Answer £ (3 marks)

- 8 (a) Write 0.35 in standard form.

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Answer (1 mark)

- (b) When two numbers are multiplied together the answer is 6.4×10^{15}

One of the numbers is 8×10^9

Work out the other number.

Give your answer in standard form.

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Answer (3 marks)

END OF SECTION A

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General Certificate of Secondary Education
November 2006



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

33003/IB

Monday 13 November 2006 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.

- 9 (a) Write down the cube root of 27

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Answer (1 mark)

- (b) Work out $5^2 \times 2^3$

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Answer (2 marks)

- (c) Work out $\frac{7}{8} - \frac{1}{2}$

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Answer (2 marks)

- 10 Write 0.4 $\frac{9}{20}$ 35% in order.

Start with the largest.

You **must** show your working.

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Answer (3 marks)

11 The ingredients needed to make 500 millilitres (ml) of a fruit drink are

orange juice	300 ml
mango juice	60 ml
lemonade	140 ml

(a) What percentage of the fruit drink is orange juice?

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.....

Answer % (2 marks)

(b) Dan makes some of the fruit drink.
He uses 30 ml of mango juice.

How much of the fruit drink does he make?

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Answer ml (1 mark)

(c) Robert wants to make 750 ml of the fruit drink.

How much lemonade will he need?

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Answer ml (2 marks)

12 Karl sees this advertisement in a shop window.

HOCKEY KIT

Shirt £16.50

Pair of Shorts £8.50

SPECIAL OFFER!

Buy both items and receive a 10% reduction in price

Karl buys both items.

How much does he pay?

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Answer £ (3 marks)

- 13 Find an approximate value of $\frac{7.93 \times 503}{0.486}$

You **must** show your working.

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Answer (3 marks)

- 14 Kirsty buys a bag that costs £25 to the nearest pound.

(a) Write the least amount that she could have paid.

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Answer £ (1 mark)

(b) Write the greatest amount that she could have paid.

.....

Answer £ (1 mark)

Turn over for the next question

15 (a) When written as the product of prime factors $225 = 3^2 \times 5^2$

- (i) Write 150 as the product of prime factors.
Give your answer in index form.

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Answer (3 marks)

- (ii) Work out the highest common factor (HCF) of 225 and 150.

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Answer (2 marks)

- (b) What is the least common multiple (LCM) of 2, 3 and 4?

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Answer (2 marks)

16 The areas of some African countries are shown.

Country	Area (km ²)
Nigeria	9.24×10^5
South Africa	1.22×10^6
The Gambia	11 300
Morocco	4.47×10^5
Cameroon	475 000

(a) Which country has the greatest area?

.....

Answer (1 mark)

(b) Work out the difference in area between Morocco and The Gambia.

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Answer km² (3 marks)

END OF QUESTIONS

There are no questions printed on this page