Centre No.					Pape	er Refer	ence			Surname	Initial(s)
Candidate No.			6	6	6	3	/	0	1	Signature	

Paper Reference(s)

6663/01

Edexcel GCE

Core Mathematics C1 Advanced Subsidiary

Monday 22 May 2006 - Morning

Time: 1 hour 30 minutes



Materials required for examination

Mathematical Formulae (Green)

Items included with question papers

Nil

Calculators may NOT be used in this examination.

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature.

Check that you have the correct question paper.

You must write your answer for each question in the space following the question.

Information for Candidates

A booklet 'Mathematical Formulae and Statistical Tables' is provided.

Full marks may be obtained for answers to ALL questions.

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).

There are 11 questions in this question paper. The total mark for this paper is 75.

There are 24 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

You must ensure that your answers to parts of questions are clearly labelled.

You must show sufficient working to make your methods clear to the examiner. Answers without working may gain no credit.

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Examiner's use only

Team Leader's use only

Question Number

1

2

3

4

5

6

7

Turn over

Total



	Leave blank
1. Find $\int (6x^2 + 2 + x^{-\frac{1}{2}}) dx$, giving each term in its simplest form.	
(4)	
	Q1
(Total 4 marks)	
(2002 1 11111111)	

2. Find the set of values of x for which	Le bla
$x^2 - 7x - 18 > 0.$	(4)
	02
(Tot	al 4 marks) Q2

	1
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Lcavc	
blank	

- 3. On separate diagrams, sketch the graphs of
 - (a) $y = (x+3)^2$,

(3)

(b) $y = (x + 3)^2 + k$, where k is a positive constant.

(2)

Show on each sketch the coordinates of each point at which the graph meets the axes.

Question 3 continued		Leave blank
Question 3 continued		
		Q3
	(Total 5 marks)	

4.	A sequence a_1	$, a_2, a_3, \dots$. is defined by
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$$a_1 = 3$$
,
 $a_{n+1} = 3a_n - 5$, $n \ge 1$.

(a) Find the value of a_2 and the value of a_3 .

(2)

(b) Calculate the value of $\sum_{r=1}^{5} a_r$.

(3)

uestion 4 continued	

ferentiate with respect to x $x^4 + 6\sqrt{x},$	(2)
$x^4 + 6\sqrt{x}$,	(2)
	(2)
	(3)
$\frac{(x+4)^2}{}.$	
X	
	(4)

uestion 5 continued	

0.0370
Leave
blank

(b) Express $\frac{26}{100}$ in the form $a + b\sqrt{3}$ where a and b are integers	(2)
(b) Express $\frac{26}{4+\sqrt{3}}$ in the form $a+b\sqrt{3}$, where a and b are integers.	
	(2)

Question 6 continued	
	Q

	The runs 9 km on the 11th day, and he runs a total of 77 km over the 11 day period. In the value of a and the value of d . (7)	
F		
	(7)	- 1

	I t
Question 7 continued	
	 _
	 Q

(a) Find the value of p .	(4)
(b) For this value of p, solve the equation $x^2 + 2px + (3p + 4) = 0$.	
(b) For this value of p, solve the equation $x + 2px + (3p + 4) = 0$.	(2)

14

Overtion 8 continued	Leave blank
Question 8 continued	
	Q8
(Total 6 marks)	

(3)

(2)

9.	Given that $f(x) = (x^2 - 6x)(x - 2) + 3x$,
	(a) express $f(x)$ in the form $x(ax^2 + bx + c)$, where a, b and c are constants.
	(b) Hence factorise $f(x)$ completely.

(c)	Sketch the graph of $y = f(x)$, showing the coordinates of each point at which the graph meets the axes.
	(3)

	Leave blank
Question 9 continued	
	Q9
(Total 8 marks)	

The curve C with equation $y = f(x)$, $x \ne 0$, passes through the point (3)	$(7\frac{1}{5})$
The curve C with equation $y = I(x)$, $x \neq 0$, passes through the point (3)	$(1, \frac{7}{2}).$
Given that $f'(x) = 2x + \frac{3}{x^2}$,	
(a) find $f(x)$.	
	(5)
(b) Verify that $f(-2) = 5$.	
	(1)
(c) Find an equation for the tangent to C at the point $(-2, 5)$, giving	your answer in the
form $ax + by + c = 0$, where a, b and c are integers.	(4)
	(-)

	Leav blan
Question 10 continued	l
	Q
	l Ul

The line l_2 passes through the point $R(10, 0)$ and is perpendicular to l_1 . The lines l_1 and l_2 ntersect at the point S . (b) Calculate the coordinates of S . (c) Show that the length of RS is $3\sqrt{5}$. (d) Hence, or otherwise, find the exact area of triangle PQR . (4)	(a) Find an equation for l_1 in the form $y = mx + c$, where m and c are constants.	(4)
Intersect at the point S . (b) Calculate the coordinates of S . (c) Show that the length of RS is $3\sqrt{5}$. (d) Hence, or otherwise, find the exact area of triangle PQR .		(4)
(c) Show that the length of RS is $3\sqrt{5}$. (2) (d) Hence, or otherwise, find the exact area of triangle PQR .		l_1 and l_2
(c) Show that the length of RS is $3\sqrt{5}$. (2) (d) Hence, or otherwise, find the exact area of triangle PQR .	b) Calculate the coordinates of S.	
(d) Hence, or otherwise, find the exact area of triangle <i>PQR</i> .		(5)
(d) Hence, or otherwise, find the exact area of triangle <i>PQR</i> .	Show that the length of RS is $3\sqrt{5}$.	
		(2)
	d) Hence, or otherwise, find the exact area of triangle <i>PQR</i> .	
		(4)

Question 11 continued	Le bl

Question 11 continued	1

