WWW. Dalla

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2010 question paper for the guidance of teachers

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/06

Paper 6 (Extended), maximum raw mark 40

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

• CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 2	Mark Scheme: Teachers' version	Syllabus	e r
	IGCSE – May/June 2010	0607	TOO
M marks are given for	or a correct method.	`	COM
A marks are given fo	r an accurate answer following a correct method.		O.
	r a correct statement or step.		Ser
	r a clear and appropriately accurate drawing.		, c.C
P marks are given for	r accurate plotting of points.		On
E marks are given fo	r correctly explaining or establishing a given result.		
C marks are given for	r clear communication.		

Abbreviations

correct answer only cao correct solution only cso follow through ft oe or equivalent seen or implied soi ww without working

without wrong working www

		my.
Page 3	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0607

Question	Answer	Mark	Notes			Commen	its On
A 1 (a)	2	1	B1			munication r	
(b)	8	1	B1			od shown.	
2	Prime Division Remainder $\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Division	Remainder	Divis	sion	Remainder	
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$3^5 \div 5$	3	4 ⁵ ÷	- 5	4	
	7 $2^7 \div 7$ 2	$3^7 \div 7$	3	4 ⁷ ÷		4	
	11 $2^{11} \div 11$ 2	$3^{11} \div 11$	3	4 ¹¹ ÷	- 11	4	
		3	Deduct ½ for error or omiss and round do B3	sion	Igno	re extra entri	es
3 (a)	11 7	1	B1				
(b)	17 8	1	B1				
4 (a)	$5^{13} \div 13$	4	B1				
	$ \begin{array}{ccc} 13 \\ 5(5^{12} - 1) & 13 \end{array} $		B1 B1 + B1				
(b)	17	1	B1		Acce 257,	ept 3, 5, 7, 13 653	, 97, 241,
5	p	1	B1		Acce <i>p</i> – 1	(p-1) + 1	1 or
6	Expression with p prime and a factor of a For example $10^{5-1} - 1$ or $10^4 - 1$	2	B1		Igno	re extra expr	essions
	Evaluation and comment that <i>p</i> is not a factor		R1				
7	$7^{24} - 1 = \left[\left(7^{12} \right)^2 - 1 \right] = \left(7^{12} \right)^{3-1} - 1$ so 3 is prime factor	4	M1 A1		Appl	y to one corr	rect
	$7^{24} - 1 = \left[\left(7^6 \right)^4 - 1 \right] = \left(7^6 \right)^{5-1} - 1$ so 5 is prime factor $7^{24} - 1 = \left[\left(7^2 \right)^{12} - 1 \right] = \left(7^2 \right)^{13-1} - 1$		B1 B1		answ	y to other covers deducting incorrect	
	so 13 is prime factor					ner prime fac 3,73,181,193	
		1	C1			munication s tion 1	een in

		my.
Page 4	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0607

Page 4	Mark Scheme: Teachers' version IGCSE – May/June 2010				Syllabus er		
IGCSE — May/			A110 EU1		acar.		
Question	Ansv	ver	Mark	Notes	Comments		
B 1 (a)	20		1	B1	Syllabus 0607 Comments		
(b)	$\frac{20}{1\frac{1}{2}}$ o	e	1	R1	Averaging speeds possible		
2	$\frac{10+}{1\frac{1}{4}}$	<u>5</u> oe	2	R1 15 ÷1.25 with time in any form	Accept 12 × 1.25 = 15		
				R1 for 15 and $1\frac{1}{4}$ shown in working			
3	11.6	to 11.7(km/h)	2	M1 $\frac{10+4}{1\frac{1}{5}}$ oe	Ignore extra methods Communication mark possible but not for model or $\frac{840}{72}$		
4 (a)	10+	$\frac{20 \times \frac{x}{60}}{+\frac{x}{60}}$ oe for numerator	2	B1 for numerator or denominator seen			
(b)	and b	ence of either multiplying top bottom by 60 or common minators of 60 oe.	1	R1			
5	11.7	to 11.8(km/h)	1	B1	Communication mark (can be evidence of substitution)		
6	-0		2	G1 correct shape G1 start at (0, 10)			
7	26 or	· better	2	M1 Sketch showing intersection of graphs M1 600 + 20x = 13(60 + x)	Communication mark for complete correct method shown or described. Reverse substitution statement does not gain communication		

		7	
Page 5	Mark Scheme: Teachers' version	Syllabus	er
	IGCSE – May/June 2010	0607	100
			AO 4

Page 5		5	Mark Scheme: Teachers' version IGCSE – May/June 2010			Syllabus 0607 Communication mark
8	(a)	(S=)	$\frac{600 + yx}{60 + x} \text{oe}$	1	B1	Cambridge
	(b)	3		2	M1 $\frac{600 + 24y}{60 + 24} = 8$ soi A1ft for at least same level of difficulty	Communication mark
	(c)	7/10		2	G1 decreasing from a point on the <i>y</i> -axis G1 <i>x</i> -axis asymptote	
		0		1	C1	Communication seen in two of questions 3, 5, 7, 8(b)