CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

0580 MATHEMATICS

0580/12 Paper 1 (Core), maximum raw mark 56

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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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Abbreviations

cao correct answer only
dep dependent
FT follow through after error
isw ignore subsequent working
oe or equivalent
SC Special Case
nfww not from wrong working
soi seen or implied

Qu.	Part	Answers	Mark	Part Marks
1		$4p$	**1**	
2		1.49 or 1.491...	**1**	
3	**(a)**	340 000	**1**	
	(b)	999 999	**1**	
4		$\sqrt{0.2}$ $\frac{9}{20}$ 45.4% $\frac{5}{11}$	**2**	**B1** for 3 from 0.4545[…], 0.447[2….], 0.454, 0.45 or equivalent percentages seen or three in the correct order. If zero **SC1** for correct but in reverse order.
5	**(a)**	–9	**1**	
	(b)	10 or −10	**1**	
6	**(a)**	570 000	**1**	
	(b)	5.69×10^5	**1**	
7		4 4 10	**2**	**B1** for answer of 4 4 k or 4 p q where $p + q = 14$
8	**(a)**	(0, 5)	**1**	
	(b)	– 1	**1**	
9		[x =] 2, [y =] – 3	**2**	**B1 B1** or **SC1** for reversed answers
10		7.06 or 7.063 to 7.064	**2**	**M1** for $\frac{[\ ]}{8}$ = cos28 or better
11		8750 8850	**1, 1**	If zero, **SC1** for both correct but reversed
12	**(a)**	46	**1**	
	(b)	20 05 or 8 05 pm	**2**	**M1** for adding 3 h 20 min and 2 hours to 14 45 **or B1** for 18 05 or 6 05 pm or 16 45 or 4 45 pm or 20 h [0]5 or 20 05 pm or 20 05 am

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13	**(a) (i)**	326 – 330	**1**	
	(a) (ii)	1100 – 1140	**1**	
	(b)	B	**1**	dep on 100 000 or [0].084 seen www scores 0
14	**(a)**	35	**1**	
	(b)	$\frac{3V}{A}$ or $3VA^{-1}$	**2**	**M1** for multiplying by 3 or for dividing by $\frac{1}{3}$ or **M1** for dividing by A
15		3.17 or 3.174 to 3.175	**3**	**M2** for $\frac{63-61}{63} \times 100$ oe or $100 - \frac{61}{63} \times 100$ oe or **M1** for $\frac{63-61}{63}$ oe or $\frac{61}{63} \times 100$
16		$\left[\frac{1}{2} \times 1\frac{1}{2} =\right] \frac{3}{4}$ oe $\frac{5\times2}{6\times2}$ and $\frac{3\times3}{4\times3}$ oe or better $\frac{1}{12}$ oe **working must be shown**	**B1** **M1FT** **A1**	
17		74	**4**	**M1** for 800 × 1000 or 180 ÷ 1000 soi and **M1** for figs 8 ÷ figs 18 and **M1** for converting (secs) to mins 74.1 or 74.07… implies **M3**
18	**(a)**	(0).82 oe	**1**	
	(b) (i)	$\frac{5}{14}$ oe	**1**	in **(b)** penalise consistent incorrect denominator once
	(ii)	$\frac{9}{14}$ oe	**1**	
	(iii)	0	**1**	

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19	**(a)**	acute	**1**	
	(b)	reflex	**1**	
	(c)	parallel	**1**	
	(d)	perpendicular	**1**	
20	**(a)**	300.763 cao	**2**	**M1** for 6.7^3 oe
	(b)	269.34 cao	**2**	**M1** for $6.7^2 \times 6$ oe
21	**(a)**	177 or 176.7 to 176.74	**2**	**M1** for $\pi \times 7.5^2$ oe
	(b) (i)	27	**2**	**B1** for angle *CAO* marked, or clearly used, as a right-angle (or 90°) or **M1** for 180 – 90 – 63 oe
	(ii)	one correct geometrical reason	**1**	[angle between a] radius [and a] tangent [is a] right-angle or [angles in a] triangle [add up to] 180° or [the] angles [have to] add to 180°

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