UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2010 question paper for the guidance of teachers

0580 MATHEMATICS

0580/11 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.

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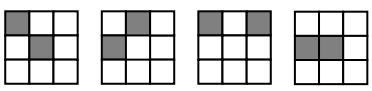
UNIVERSITY of CAMBRIDGE International Examinations

Abbreviations

cao correct answer only
cso correct solution only
dep dependent
ft follow through after error
isw ignore subsequent working
oe or equivalent
SC Special Case
www without wrong working

Qu.	Answers	Mark	Part Marks
1	–8	1	Accept negative or minus in place of '–'
2	3.87×10^{-3}	1	
3	(Triangular) prism	1	
4	17.5	1	
5	54(.00) final answer	2	**M1** for $\frac{450 \times 8 \times 1.5}{100}$ oe or **SC1** for 504(.00)
6	Perpendicular bisector of AB **with** 2 pairs of arcs	2	**SC1** accurate, but without arcs
7	11.5, 12.5	1, 1	Independent **SC1** if answers reversed
8	14	2	**M1** for $\frac{230}{(108+7)} \times 7$ or better or **SC1** for 216 as answer (steel)
9	8.36(0)	2	**M1** for $\frac{h}{6.3} = \tan 53°$ or $\frac{6.3}{h} = \tan 37°$ or better
10	**(a)** 5.062608(024) **(b)** 5.063	1 1ft	 ft **(a)** to 4sf only if their **(a)** is 5 digits or more
11	**(a)** 2 lines joining opposite vertices **(b)** Centre square and any other **or** 2 adjacent corner squares **or** 2 centre squares on adjacent edges	1, 1 1	Independent Accept reasonable freehand Any of these diagrams:  May be rotated through 90, 180, 270 degrees

12	$(x =)\ 7$ $(y =)\ -3$	3	**M1** for multiplying/dividing and adding/ subtracting or other complete correct method **A1** for one correct variable
13	**(a)** $\begin{pmatrix}4\\2\end{pmatrix}$	1	
	(b) (i) $\begin{pmatrix}-6\\3\end{pmatrix}$	1	
	(ii) S plotted at $(-3\ ,\ 4\ )$	1ft	ft their PS
14	**(a)** 1	1	
	(b) x^{10}	1	
	(c) p^{-7} or $\frac{1}{p^7}$	1	
15	663.72	3	**M2** for 663.716…. or **M1** for $900 \div 1.356$ and **B1** for their longer wrong answer corrected to 2dp
16	**(a)** 1, 2, 3, 6 final answer cao	2	**B1** for only 3 factors as final answer or all 4 plus a wrong one as final answer
	(b) 36 only (as final answer)	2	**B1** for any common multiple seen anywhere
17	**(a)** $\frac{1}{10}$	1	
	(b) 0	1	Accept $\frac{0}{10}$ but no other number than 10
	(c) $\frac{5}{10}$ oe	1	
	(d) $\frac{7}{10}$	1	
18	**(a)** 3846 **to** 3849 **or** 3850	2	**M1** for $\pi \times 35^2$ or **SC1** correct volume answer
	(b) 169224 **to** 169356 **or** 169400 **or** 169000	1ft	ft their **(a)** × 44
	(c) 169.2 **to** 169.4 **or** 169	1ft	ft their **(b)** ÷ 1000

19	**(a)** $\frac{4}{3} \times \frac{5}{14}$	M2	**M1** for $\frac{4}{3} \div \frac{14}{5}$ and **M1** for 'correct' expression with their inverted 2nd fraction
	$\frac{10}{21}$	A1	Allow $\frac{20}{42}$ isw for attempt to cancel only
	(b) $\frac{13}{15} + \frac{3\times3}{15}$ or better or equivalent	B2	If **B0**, then **B1** for $\frac{13}{15}$ + their $\frac{9}{15}$ or equivalent pair of fractions
	$1\frac{7}{15}$	B1ft	Independent ft their improper fraction given as a mixed number
20	**(a)** Trapezium	1	
	(b) $p = 32°$, alternate	1, 1	Accept Z angles
	$t = 99°$, exterior angle (of) triangle	1ft, 1	ft if $t = p + 67$ Accept angle of triangles and angles on straight line
	$w = 74°$, (base angle) isosceles triangle	1 , 1	Accept $\frac{1}{2}(180 - 32)$ with isosceles