UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2006 question paper

0580, 0581 MATHEMATICS

0580/01, 0581/01 Paper 1 (Core), maximum raw mark 56

This mark scheme is published as an aid to teachers and students, 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.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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

The grade thresholds for various grades are published in the report on the examination for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses.

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

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TYPES OF MARK

Most of the marks (those without prefixes, and 'B' marks) are given for accurate results, drawings or statements.

- **M** marks are given for a correct method.
- **B** marks are given for a correct statement or step.
- **A** marks are given for an accurate answer following a correct method.

ABBREVIATIONS

a.r.t.	Anything rounding to
b.o.d.	Benefit of the doubt has been given to the candidate
c.a.o.	Correct answer **only** (i.e. no 'follow through')
e.e.o.	Each error or omission
f.t.	Follow through
i.s.w.	Ignore subsequent working
o.e.	Or equivalent
SC	Special case
s.o.i.	Seen or implied
ww	Without working
www	Without wrong working
√	Work followed through after an error: no further error made

Question	Answers	Mark	Notes
1	-13.1	1	
2	$2 \times (3 - 4) + 5 = 3$	1	& no other brackets
3	Negative (allow –ve)	1	Not allow 'N' or 'n' or 'No'
4	18	1	
5	12.09 or 12.1	1	Not 12.10
6	$2a(ab - 3)$ final answer.	2	SC1 for $2(a^2 b - 3a)$ or $a(2ab - 6)$ or $2a(ab + 3)$ or $2a(ab - 6)$ final answer.
7	(a) 0.0561 (b) 15300	1 1	(Answers may be in standard form)
8	$3x^6y^3$ or $3(x^2y)^3$	2	SC1 for x^6 or y^3 seen in final answer
9	(a) 79507 (b) 80000	1 1ft	ft provided (a) $\geq$ 500 and not a multiple of 1000.
10	$\frac{6}{10}$ $\frac{33}{50}$ $\frac{2}{3}$	2 15	SC1 for reverse order. M1- at least 2 fractions correctly compared in the same form. (decimal, percentage or common denominator)
11	$(x =) \frac{6}{5}$ oe isw	2	M1 for $-2 + 8 = 10x - 5x$ oe or better.
12	B (and) D	1,1	Either way round. -1 each extra letter.
13	3.51×10^{-3}	2	B1 for figures 351 seen
14	15.55 ($\leq$ length $<$) 15.65	2	1 mark for each. SC1 for fully correct but reversed.
15	(a) 3.2 (b) 384	1 1 ft	their (a) $\times$ 120.
16	(a) 3 or $2^3 = 8$ (b) -4 or $3^{-4} = 81$	1 1	SC1 for 2^3 **and** 3^{-4} in the answer spaces
17	(a) art 314 (b) $\sqrt{\frac{A}{4\pi}}$ oe	1 2	M1 for $\frac{A}{4\pi}$ seen
18	(a)(i) 30 (ii) Straight line from (11 00, 20) to (11 45, 80) (b) 'Correct' horizontal line 'Correct' return journey line	1 1 1 1 19	Ignore all beyond (11 45, 80) Horizontal line @ 80, 4 units long. Line to (14 30, 0)

19	(a) 52.2(0) 83.7(2) (b) 7.8(0) (c) art 36.4 allow –ve. Accept 36www	1 1ft 2ft	 60 – their ($3.48 × 15) M1 for ((their 83.72 – 15 × 3.55)/their 83.72) × 100 or 100 – ((15 × 3.55)/their 83.72) × 100
20	(a) 2 correct lines on H 1 correct line on W (b) 1 2	1 1 1 1	Ruled not essential in either. Judge by eye. No extraneous lines on either. Allow 0 or indication of no rotational symmetry.
21	(a) $\begin{pmatrix}0\\4\end{pmatrix}$ Final ans (b) $\begin{pmatrix}30\\-24\end{pmatrix}$ Final ans	2 2	Ignore 'fraction' lines in (a) and (b) Allow coordinate form 1 mark for each correct component. 1 mark for each correct component.
22	(a) $\frac{10+20}{5-(20\div10)}$ (b) 10 cao. (c) 9.49 cao. 17	2 1 2	SC1 for 3 or 4 of the numbers given to 1 significant figure. B1 for 9.485(5)… to 9.493 seen. (Allows for 22 ÷ 13 rounded to 3sf) If zero, SC1 for 9.5www as final answer (Not 9.50 but check for possible B1)
23	(a)(i) $\frac{31}{36}$ oe isw (ii) 0 Final ans (iii) 1 (b) $\frac{17}{99}$ isw (c) Piero's 5	1 1 1 1 1	Fraction, decimal or percentage only. $\frac{0}{6}$, $\frac{0}{36}$, 0% or zero. Not allow 'no', none, $\frac{0}{7}$ or 0/0. Allow $\frac{6}{6}$ or $\frac{36}{36}$ or 100%. If decimal, allow art 0.172 Can be indicated by $\frac{21}{102}$

Total for the paper is 56 marks