CAMBRIDGE
INTERNATIONAL EXAMINATIONS

November 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 104

SYLLABUS/COMPONENT: 0580/03, 0581/03

MATHEMATICS

Paper 3 (Core)

UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate

Page 1	Mark Scheme	Syllabus	Paper
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Question Number	Mark Scheme	Part Marks	Notes	Question Total
1 a)	24	1		
b)	25 or 5^2	1		
c)	27 or 3^3	1		
d)	23 29	1 1		
e)	26	1	condone 6, 26 or 6 x 26	
f)	28 cao	1		
g)	21 and 27	1	condone 21 x 27	**8**
2 a) i)	1300 or 1 pm	1		
ii)	1030	1	allow 10.30, 10:30 etc	
iii)	9	2	**B1** for either 24 or 33 seen or **M1** for 2 correct horizontal lines drawn or 24 and 33 marked on axis	
b) i)	4.35, 8.7(0)	2	**B1** for one correct	
ii)	Correct straight line (through (10, 8.6 to 8.8)	2	**P1** for (5, 4.2 to 4.4) or (10, 8.6 to 8.8)	
iii)	9.2(0) (± 0.1)	1	no ft.	
iv)	575 (± 5)	1	no ft.	**10**
				18
3 a)	6000	2	**M1** for 25 x 30 x 8	
b) i)	art 4400	3	**M2** for π x 10^2 x 14 or **SC1** for π x 5^2 x 14	
ii)	art 10400	1 √	ft *their a* + *bi*	
iii)	art 13.9	3 √	ft for (*their bii*) ÷ (25 x 30) **M2** for (*their bii*) ÷ (25 x 30) oe or **M1** for (*their bi*) ÷ (25 x 30)	**9**
4 a)	4, 7, 6, 4, 4, 2, 3	2	**SC1** for 5 or 6 correct or 7 correct tallies	
b)	1 cao	1		
c)	2 cao	2	**M1** *for* attempt at ranking list seen	
d)	2.5 cao –	2	**M1** *their* $\sum f(x) \div \sum f$ imp by 2.5 seen	
e) i)	0.23(3....) or $\frac{7}{30}$	1 √	allow 23% ft from their table	
ii)	0.3 or $\frac{3}{10}$ or $\frac{9}{30}$	1 √	ft from their table	
f)	40	1 √	ft *their* table x 10. Allow 40/300	**10**
				19
5 a)	6 –4	1 1		
b) i)	Rotation through 180° about (2.5, 6) o.e.	**M1** **A1** **A1**	Half turn **M1 AI**, –1 for "symmetry" allow correct description of point	
ii)	Enlargement s.f. 3 centre (1,7)	**B1** **B1** **B1**	 accept scale 3, x3 etc accept'B' for (1,7)	
c) i)	3 cao	1	ignore units	
ii)	1 : 9 cao	2	**SC1** for 27 seen **M1** for correct answer nlt	
d)	$\frac{-2}{3}, \frac{-6}{9}$, –0.66 or better	2	**SC1** for $\frac{2}{3}$ oe or –k	**13**

Page 2	Mark Scheme	Syllabus	Paper
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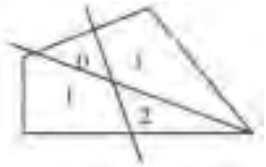
6 a) i)	27	1		
ii)	6	2	**M1** for (39 - 3) ÷ 6	
iii)	$\frac{P-3}{6}$ oe	2	**M1** for P–3 seen or $\frac{P}{6}=\frac{6x+3}{6}$ oe seen	
b) i)	$4x + 3$		**M1** for $9x + 4 – 2x – (3x + 1)$ oe allow $9x + 4 – 2x – 3x + 1$ oe for **M1** or **SC1** for $4x$ or (+)3 in answer space	
ii)	10, 16 and 23	3	**M1** for $9x + 4 = 49$ oe **A1** for $x = 5$	**10**
				23
7 a) i)	44	2	**SC1** for 40 to 48	
ii)	52	3	**B1** for 6 or 8 or 12 or 9 or 21 or 28 or 32 or 112 seen +M1 for adding 6 rectangles o.e.	
iii)	cuboid or rectangular prism	1	allow rectangular cuboid but not cube or cubical	
iv)	52	1 √	ft from *their aii* (not strict ft)	
v)	24	2	**M1** for 2 x 3 x 4	
b) i)	$2(pq + qr + pr)$ oe as final answer	2	**SC1** for *pq* or *qr* or *pr* seen or imp. for both parts. Other letters used consistently MR–1	
ii)	*pqr* as final answer	2	**M1** for *pqr* seen	**13**
8 a)	12.5 NB 4021 answer 12.5 working uses 75 and 800	3	**M1** for 7.5 x 12 oe or 80/12 oe seen +**M1** for $\frac{90-80}{80}x100$ (explicit) or $\frac{7.50-6.66....}{6.66....}x100$ (explicit) after M0 **SC2** for *figs* 124 to 126 ww or **SC1** for 112.5	
b)	120 minutes	3	**B1** for $\frac{2}{5}$ or 180 or $\frac{3}{5}$ x 300 seen +**M1** for $\frac{2}{5}$ x 300 oe or 300-180	
c) i)	Accurate ⊥ bisector of AB, with arcs ±1°±1mm complete inside figure	2	**SC1** if accurate without arcs or incomplete line. Ignore extra lines	
	Accurate bisector of <C with arcs *as above*	2	**SC1** if accurate without arcs or incomplete line *as above*	
ii)	correct area shaded 	2 √	Areas marked as diagram ft from clear intention to draw perp. bisector and angle bisector	**12**
9 a) i)	150 (km)	1		
ii)	15 000 000 oe (√)	2	**MI** for *their* a)i) x 100 x 1000 or **SC1** for *their* a)i) x 10^n when n>0	
b) i)	1270 to 1320	2	**M1** for *their* 8.6 x *their* 150 must have some evidence for *their* 8.6	
ii)	(0)45 to (0)48 oe	1		
iii)	245 to 248	2	**SC1** for any answer in the range $180 < x < 270$	**8**
				20

10 a)	1 6 15 20 15 6 1 Sum 64 1 7 21 35 35 21 7 1 Sum 128	1 1 2 1	**SC1** if 6 or 7 correct	
b) i)	512 accept 2^9	2	**SC1** for 256	
ii)	2^n	2	**SC1** for 2 x 2 x 2 seen or description	
c)	165 330 462 The first 6 numbers repeated in reverse order	1 1		**11**
				11
			TOTAL	**104**