

**JUNE 2002**

**INTERNATIONAL GCSE**

**MARK SCHEME**

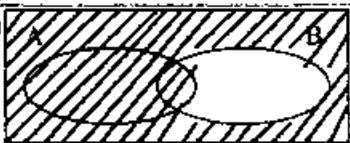
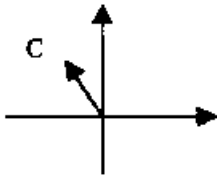
**MAXIMUM MARK : 70**

**SYLLABUS/COMPONENT : 0580/2; 0581/2**

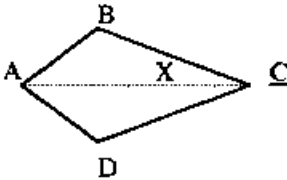
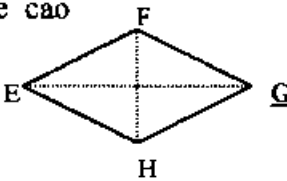
**MATHEMATICS**  
**(Structured Questions)**



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Question Number	Mark Scheme	Part Marks	Notes	Question Total
1	a) $4.15 \times 10^8$ final answer cao b) 10 cao	B1 B1		2
2	a) 2008 b) 1993	B1 B1	allow January 2008	2
3	a)  b) (C∪D)' or C'∩D'	B1 B1		2
4	34 cao 126 cao	B1 B1		2
5	10	2	M1 for $\sqrt{(5-1)^2 + (-4-4)^2}$ oe	2
6	a)  b) $-a + b$ oe	B1 B1	C at (-1,3) or a representative of $\begin{bmatrix} -1 \\ 3 \end{bmatrix}$ drawn unambiguously anywhere  condone missing vector symbols	2
				<b>12</b>
7	(-12)	2	M1 for $\frac{-22+25}{25} \times 100\%$ oe	2
8	$x > 15$ cao or $15 < x$	2	M1 $2x$ and 30 (both + or both -) or better seen or SC1 for 15 seen in answer space	2
9	a) 28.5(cm) cao b) 270.75 (cm <sup>2</sup> ) cao	B1 B1	Accept 271 or 270.8 here	2
10	a) 0.75(m <sup>2</sup> )oe	2	M1 for 400 or $20^2$ seen or SC1 for figs(75) as final answer  √ their previous answer $\times 10^4$	

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	b) $7500 \text{ (cm}^2\text{)}$ ✓	B1✓		3
11	$V = \frac{5-T}{T}$ oe	3	B1 for $T(V+1)=5$ or $\frac{1}{T} = \frac{V+1}{5}$ oe. M1✓ Correct follow through method to get single V	3
12	135(°)	3	M1 for attempt to find the angle sum of 7-sided polygon or M1 for $\frac{360-90}{6}$ M1 dep for completion. After no marks, SC1 for 45° in answer space or SC2 for answer in the range 135 to 136	3
				15
13	a) Correct completion of net b) 12 c) 40	B1 B1 B1	ignore units ignore units	3
14	a) 4, 1, $\frac{1}{2}$ , $\frac{1}{16}$ oe isw b) $y^3 < y^{-1} < y^0 < y^2$	B2  B2	allow SC1 for any two correct  M1 for using a number $< -1$ or SC1 for $y^2$ largest or $y^3$ smallest	4
15	a)i)  ii) Kite cao b)i)  ii) 2 or "twice" cao	B1  B1  B1	C on line anywhere <u>except</u> symmetric X. Condone lack of "C", freehand or no lines drawn  no follow through  G on line so that FH is line of symmetry. Condone lack of "G", freehand or no lines drawn  not 2:1; 180°	4
16	a)i) 27 ii) $3\sqrt{\quad}$  b) $2x^3 - 5$ oe seen isw c) $x^3$ cao	B1 B1✓  B1 B1	✓ correct cube root of their a) allow 2.9recurring	4
				15
17	a) $16\pi r^2$ oe as final answer b) $15\pi r^2$ oe as final answer c) $10\pi r$ oe as final answer (single term)	B1 B1 B2	accept 50.2 to 50.3 for $16\pi$ accept 47.1 to 47.2 for $15\pi$ accept $31.4(\dots)r$ M1 for $2\pi r + 2\pi(4r)$ oe SC2 for all three answers correct	

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			but omitting $r$ and $r^2$	4
18	a) i) (\$) 128 ii) 25.6 or 25 or 26 b) 24	B1 B1√ 2	√ for <i>their</i> $(128) \times 6.45 - 800$ M1 for $I = \frac{800 \times 12 \times \frac{1}{4}}{100}$ SC1 for 96, 288, 824 or 32	4
19	a) i) $-3+6x = -15$ oe ii) -2 b) $ c  = 0$ c) $\frac{1}{4} \begin{pmatrix} 5 & 3 \\ 2 & 2 \end{pmatrix}$ oe	B1 B1√ B1 B2	√ from a non-trivial linear equation to 3 sf SC1 for $\frac{1}{4} \begin{pmatrix} \cdot & \cdot \\ \cdot & \cdot \end{pmatrix}$ or $k \begin{pmatrix} 5 & 3 \\ 2 & 2 \end{pmatrix}$	5
20	a) i) $x(x-5)$ ii) $(x-5)(2x-1)$ oe b) $\frac{x}{2x-1}$	B1 B2 B2	condone $(x \pm 0)(x-5)$ SC1 for $(x-5)(x-\frac{1}{2})$ SC1 $\frac{x}{x-\frac{1}{2}}$ or a carelessly written "correct" answer	5
				<b>18</b>
21	a) $(AC^2) = 9^2 + 6^2 - 2 \cdot 9 \cdot 6 \cdot \cos 95$ $= 126.(\dots)$ soi art 11.2 b) art 26.9	M1 A1 A1 2	Allow for cos rule attempt with one slip- ie sign error or lost 2 11.2 ww gets zero 11.24 ww gets 3 M1 for $\frac{1}{2} \times 9 \times 6 \times \sin 95$ or complete correct alternative method	5
22	a) $y = \frac{1}{2}x + 3$ oe b) $x > 2$ (or $\geq$ ) $y \leq 7$ (or $<$ ) $y \geq$ <i>their</i> $\frac{1}{2}x + 3$ (or $>$ )	B1, B1 B1 B1 B1√	After 0 scored allow SC1 for $\frac{1}{2}x + 3$ seen in each part condone incorrect notation provided meaning is clearly correct	5
				<b>10</b>

**TOTAL MARKS 70**