CAMBRIDGE
INTERNATIONAL EXAMINATIONS

**June 2003**

INTERNATIONAL GCSE

# MARK SCHEME

## MAXIMUM MARK: 70

**SYLLABUS/COMPONENT: 0580/02, 0581/02**

**MATHEMATICS**

**Paper 2 (Extended)**

UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate

| Page 1 | Mark Scheme | Syllabus | Paper |
|---|---|---|---|
| | IGCSE EXAMINATIONS – JUNE 2003 | 0580/0581 | 2 |

| Question Number | Mark Scheme | Part Marks | Notes | Question Total |
|---|---|---|---|---|
| 1 | 0.049 < 5% < 5/98 o.e. | 2 | M1 for *figs* 51… seen after 0, SC1 for 2 correct entries | 2 |
| 2 (a) | 7.85 to 8(.00…) | 1 | | |
| (b) | 56.25 to 57.5(0) | 1 | | 2 |
| 3 | 194(.4) | 2 | M1 for 54 × 3600/1000 or SC1 for *figs* 194….seen | 2 |
| 4 | $\begin{pmatrix}-4\\-7\end{pmatrix}$ c.a.o. | 1<br>1 | | 2 |
| 5 | 38 | 2 | M1 for 665/(17 + 18) s.o.i. by equivalent complete method | 2 |
| 6 | 201.25 | 2 | allow 201 or 201.3 in ans. space if 201.25 seen<br>M1 for 17.5 × 11.5 s.o.i. | 2 |
| 7 | 4 < x <6 | 2 | SC1 for either one after 0, M1 for 8<2x<12 s.o.i. | 2 |
| 8 | ±11 – ±1331<br>14 196 –<br>-7 49 – | 3 | 2 for 4 or 5 correct<br>1 for 2 or 3 correct | 3 |
| | | | | 17 |
| 9 (a) | $\frac{1}{6}$ or 0.16(…..) or 0.17 | 1 | | |
| (b) | art 9.5(°) | 2 | M1 for correct use of tan o.e. | 3 |
| 10 | $\frac{x+11}{(x-3)(x+4)}$ o.e. | 3 | M1 for denom. $(x-3)(x+4)$ o.e.<br>M1 for $2(x+4)-(x-3)$ o.e. | 3 |
| 11 | integer $\sqrt{(112/7)}$<br>rational nos. 2.6<br>4/17<br>irrational no. $\sqrt{12}$ | 1<br>1<br>1<br>1 | accept $\sqrt{16}$ or 4<br>accept 0.235<br>accept 3.46 | 4 |
| 12 (a) | 18 | 2 | M1 for $2p + 3p + 90 = 180$ o.e. or SC1 for 36 or 54 seen www. | |
| (b) | 30 | 2 | M1 for $q + 5q = 180$ o.e. or SC1 for 150 seen | 4 |
| | | | | 14 |

| Page 2 | Mark Scheme | Syllabus | Paper |
|---|---|---|---|
| | IGCSE EXAMINATIONS – JUNE 2003 | 0580/0581 | 2 |

| | | | | |
|---|---|---|---|---|
| **13 (a)** | 100 | 1 | | |
| **(b)** | 1200 √ | 1 | √ for (12 × *their* a) | |
| **(c)** | 10 < *x* < 30 ht 30 mm<br>60 < *x* < 100 ht 22 mm | 1<br>1 | | 4 |
| **14 (a)** | 10 17 4<br>–6 –9 0 | 2 | SC1 if 4 or 5 correct | |
| **(b)** | $\frac{1}{2}\begin{pmatrix}-2 & -4\\ 3 & 5\end{pmatrix}$ oe | 2 | 1 for $\frac{1}{2}$ s.o.i., 1 for k$\begin{pmatrix}-2 & -4\\ 3 & 5\end{pmatrix}$ s.o.i. | 4 |
| **15 (a)** | 50.3 | 2 | M1 for $\frac{(7087000-4714900)}{4714900}$ o.e.<br>must be recognisable complete correct method | |
| **(b) (i)** | 4710000 or $4.71 \times 10^6$ | 1 | | |
| **(ii)** | $7.087 \times 10^6$ | 1 | accept $7.09 \times 10^6$, ignore superfluous zeros | 4 |
| **16 (a)** | 24.7 | 2 | M1 for 80 × sin 18° seen | |
| **(b)** | 46.2 | 2 | M1 for 3(4 + 11.4) o.e. (no MRs)<br>3 × 3.8 does not imply 11.4 | 4 |
| | | | | **16** |
| **17 (a)** | Correct shear ±1mm | 2 | M1 for shear with either axis invariant | |
| **(b) (i)** | Correct stretch ±1mm | 2 | M1 for stretch with either axis invariant | |
| **(ii)** | $\begin{pmatrix}1 & 0\\ 0 & 3\end{pmatrix}$ cao | 1 | | 5 |
| **18 (a)** | 1:1000 | 1 | | |
| **(b) (i)** | accurate perp bisector of AD, with two pairs of arcs | 2 | SC1 if accurate but no arcs<br>SC1 if accurate arcs but no line | |
| **(ii)** | accurate bisector of <BCD, with two pairs of arcs | 2 | SC1 if accurate but no arcs<br>SC1 if accurate arcs but no line | |
| | T marked in correct position | 1 | Indep. | 6 |
| | | | | **11** |

| Page 3 | Mark Scheme | Syllabus | Paper |
|---|---|---|---|
| | IGCSE EXAMINATIONS – JUNE 2003 | 0580/0581 | 2 |

| | | | | |
|---|---|---|---|---|
| **19 (a)** | correct demonstration | 2 | M1 for $20x + 80y$ seen | |
| **(b)** | $x + 2y = 120$ o.e. fully simplified | 2 | M1 for $25x + 50y = 3000$ seen condone inequality signs for method mark. Ignore $ | |
| **(c)** | straight line thr. (120,0) and (0,60) | 1√ | √ from *their b)*. Line must be complete , and be on given grid | |
| | 60 cars, 30 trucks | 1 | also allow 80,20; 100,10; 120,0 or points on the correct section of the line ($60 \leq x \leq 120$) | 6 |
| | | | | **6** |
| **20 (a)** | art 0.1, 0.3, 0.6, 1, 1.7 and 3 | 3 | SC2 for 4 or 5 correct<br>SC1 for 2 or 3 correct | |
| **(b)** | correct curve drawn | 2 | P1 for correct or √ 6 or 7 points correctly plotted ±1mm | |
| **(c)** | $1.6 \leq x < 1.65$ | 1 | | 6 |
| | | | | **6** |

**TOTAL MARKS 70**