**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**

International General Certificate of Secondary Education

# MARK SCHEME for the June 2005 question papers

## 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 initialy instructed to award marks.  It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began.  Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

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*.

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

CIE is publishing the mark schemes for the June 2005 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

**Grade thresholds** for Syllabus 0580/0581 (Mathematics) in the June 20 examination.

| | maximum mark available | minimum mark required for grade: | | | |
|---|---|---|---|---|---|
| | | A | C | E | F |
| Component 1 | 56 | N/A | 39 | 26 | 20 |

The threshold (minimum mark) for B is set halfway between those for Grades A and C.
The threshold (minimum mark) for D is set halfway between those for Grades C and E.
The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.
Grade A* does not exist at the level of an individual component.

**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 |

**June 2005**

IGCSE

| MARK SCHEME |
| :---: |
| MAXIMUM MARK: 56 |
| SYLLABUS/COMPONENT: 0580/01, 0581/01 <br><br> MATHEMATICS <br><br> Paper 1 (Core) |

| Question | Answers | Mark | Notes |
|---|---|---|---|
| 1 | 1393000 | 1 | Allow 1393000.0 or $1.393 \times 10^6$ |
| 2 | $\frac{9}{30}$ or $\frac{3}{10}$ or 0.3 or 30% isw | 1 | isw only for incorrect cancelling |
| 3 | 40 | 1 | |
| 4 | 35 : 8 <br> ignore consistent units | 2 | M1 for 3500 or 0.8 seen. SC1 Reversed <br> SC1 for 1: $\frac{8}{35}$ or $4\frac{3}{8}$:1 ($\frac{35}{8}$:1)  or $35k$ : $8k$ <br> (decimal form for SC1 correct to 3sf) |
| 5 | $\frac{1}{64}$ | 2 | B1 for $\frac{1}{4^3}$ or $\left(\frac{1}{4}\right)^3$ or $(\pm)$ 64 seen. <br> decimal form only B0 |
| 6 | (a)  12 only <br> (b)  3 only | 1 <br> 1 | |
| 7 | 63 | 2 | M1 for 28 $\div$ 4 x 9 (can be implied by  $\frac{252}{4}$ ) <br> 63.64 or 63.63 implies M1 |
| 8 | –9 www | 2 | B1 for – 27 or (+)18 seen |
| 9 | $255 \le$ weight $< 265$ | 2 | 1 mark for each. Allow 255.0 and 265.0 <br> SC1 for fully correct but reversed |
| 10 | 3.31 or 3.308 or 3.307(….) | 2 <br> $\boxed{17}$ | M1 for 12sin16 <br> (implied by $12 \times 0.28$ or better) <br> Grads 2.98…. implies M1. 3.3ww no marks |
| 11 | 900 | 2 | M1 for (5000 x 3 x 6) $\div$ 100 oe or <br> B1 for 300 seen <br> SC1 for 5900 |
| 12 | $(s =) (p + q)/t$ or $\frac{p + q}{t}$  oe | 2 | B1 for $p + q$ seen or correct $\div$ by $t$ <br> or $p/t = s – q/t$ or $(p –q)/t$    SC1 for $p + q/t$ or $p/t + q$ |
| 13 | (a)   similar <br> (b)   145 | 1 <br> 1 | |
| 14 | rounds to 1410 isw <br> (isw only for incorrect rounding eg 1413 = 141) | 2 | M1 for $\pi \times 15^2 \times$  2 (or $\pi \times 1.5^2 \times 0.2$ ) <br> SC1 if $\pi \times 30^2 \times 2$ calculated correctly <br> (rounds to 5650 or 5660) (allow 3(.0)used) <br> 1.41 cm$^3$ is 2 marks, 1.41 or 5.65 implies M1 |
| 15 | (a)  multiple of 24 <br> (b)  $\frac{11}{24}$ | 1 <br> 2 | ignore extras if lowest correct <br> M1 for a correct attempt at two equivalent fractions <br> (e.g.. $\frac{5 \times 8}{48}$ and $\frac{3 \times 6}{48}$ seen or better) <br> ww. and decimals alone zero |
| 16 | (a)  23 isw <br> (b)  43 <br> (c)  $4n + 3$ oe final answer | 1 <br> 1ft <br> 1 <br> $\boxed{14}$ | ignore extras even if incorrect <br> their (a) + 20 <br> allow any unsimplified form <br> e.g. $7 + (n – 1) \times 4$ or $7 + 4n – 4$ |

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| 17 | **(a)** $4x + 17$ final answer | 2 | B1 for $-3x + 12$ or $4x$ or $+17$ seen<br>(+17 strictly www) |
|---|---|---|---|
| | **(b)** $x(5x – 7)$ | 1 | condone missing final bracket |
| 18 | 2.45 | 3 | B1 for 1.20 or 1.35 seen. (or 120 or 135)<br>M1 for $5 -$ their $(1.5 \times 0.8 + 3 \times 0.45)$<br>or $500 -$ their $(1.5 \times 80 + 3 \times 45)$ |
| 19 | **(a) (i)** $\dfrac{9 – 3 \times 2}{3}$ | 1 | allow slip of denominator as 3.0 or 3.00<br>(not allow zeros in other figures) |
| | **(ii)** (equals) 1 | 1ft | their **(a)(i)** provided order of operation is as seen and both **(a)(i)** and **(a)(ii)** are to a maximum of 1dp apart from zeros |
| | **(b)** 1.01 | 1 | |
| 20 | **(a)** Panama, (Guyana), Colombia, Brazil | 1 | allow figures if correct |
| | **(b)** 5 | 2 | M1 for $(1.14 \times 10^{6}) \div (2.15 \times 10^{5})$<br>implied by figs 53(0……) |
| 21 | **(a)** 5.6(0) oe (allow $5\frac{3}{5}$) | 2 | M1 for $35 \div 100 \times 16$<br>SC1 for $10.40 |
| | **(b)** 2.4(0) oe www<br>(allow $2\frac{2}{5}$) | 1ft<br><br>**15** | $8 – their **(a)** if positive result from their **(a)**<br>allow saving calculated from comparing costs or savings |
| 22 | **(a)** 10 | 2 | M1 for use of distance $\div$ time with figures. 5/0.5, 5/30, 5/6, 5/0.30 only. **Not** 5/8.00, 5/0.3 |
| | **(b)** 20 | 1 | |
| | **(c)** on the graph | 1 | **ruled single** line from 8.00 am home continued to school, 12 km line. Ignore beyond 12 km line<br>must cross **within** square |
| | **(d)** 12<br>(allow $10 < time < 15$)<br>(allow 12 from calculation) | 1ft | ft their **intended single** 'straight' line (need not be ruled) and within a square, not on the boundary unless actually on a boundary |
| 23 | **(a)** 90 | 1 | |
| | **(b)** 65 | 2ft | M1 for $180 – 25 -$ their **(a)** $[155 –$ their **(a)**$]$ |
| | **(c)** 25 | 2ft<br><br>**10** | ft. $90 –$ their **(b)**<br>B1 for angle DEB = 90° **used** or<br>B1 for angle CEB = 65° **seen** |