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Location Entry Codes

UNIVERSITY OF CAMBRIDGE
International Examinations

From the June 2007 session, as part of CIE's continual commitment to maintaining best practice in assessment, CIE has begun to use different variants of some question papers for our most popular assessments with extremely large and widespread candidature, The question papers are closely related and the relationships between them have been thoroughly established using our assessment expertise. All versions of the paper give assessment of equal standard.

The content assessed by the examination papers and the type of questions are unchanged.

This change means that for this component there are now two variant Question Papers, Mark Schemes and Principal Examiner's Reports where previously there was only one. For any individual country, it is intended that only one variant is used. This document contains both variants which will give all Centres access to even more past examination material than is usually the case.

The diagram shows the relationship between the Question Papers, Mark Schemes and Principal Examiner's Reports.

Question Paper	Mark Scheme	Principal Examiner's Report
Introduction	Introduction	Introduction
First variant Question Paper	First variant Mark Scheme	First variant Principal Examiner's Report
Second variant Question Paper	Second variant Mark Scheme	Second variant Principal Examiner's Report

Who can I contact for further information on these changes?
Please direct any questions about this to CIE's Customer Services team at: international@cie.org.uk

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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2007 question paper

0580/0581 MATHEMATICS

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

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

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

CIE is publishing the mark schemes for the May/June 2007 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

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1		–2	B1	
2		$0.58 < \frac{3}{5} < 62(\%)$	B1	Accept answer in alternative form provided equivalence is clear.
3		7 (h) 55 (min)	B1	
4		24	B1	
5		Negative	B1	
6	**(a)**	Jan	B1	Not just –10.2 but ignore if included.
	(b)	26(.0)	B1	Allow –26
7		145 + 180 or 360 – their **acute** angle at L 325	M1 A1	Must be clearly indicated in working or diagram.
				[9]
8	**(a)**	$\begin{pmatrix} -1 \\ 3 \end{pmatrix}$	B1	SC1 for **both** answers with components of (a) and coordinates of (b) reversed.
	(b)	(–2, –1)	B1	i.e. $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ for (a) and (–1, –2) for (b)
9		$2x^2 + 3xy$ or $x(2x + 3y)$	B2	B1 for $3x^2 - x^2 + 3xy$ or $x(3x – x + 3y)$ seen. SC1 for answer $2x^2 – 3xy$ oe or $2x^2$ seen in final answer of 2 terms.
10		75°	B2	B1 for 25° or 50° seen on diagram or clear in working that angle *BCD* is 25° or angle *DCE* is 50°. Minimum - arc seen in diagram.
11	**(a)** **(b)**	Equilateral (Triangular) prism	B1 B1	Not equal If qualified must be triangular (or triangle).
				[8]

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12		$(y =)\ 3x - 1$	B2	B1 for $mx - 1$ or $3x + c$ where m and c are integers with $m \neq 0$ and $c \neq 5$.
13	**(a)** **(b)** **(c)**	10 3 –2	B1 B1 B1	SC2 for 4^{10}, 2^3 and 5^{-2}. SC1 for two of the above
14	**(a)** **(b)**	250 ÷ 1.19886 208 to 210.084….. 1.20	M1 A1 B1	Allow division by 1.19 to 1.2 One and only one zero is essential
15		$180 - \frac{360}{6}$ $(x =)$ 120 $(y =)$ 150	M1 A1 B1ft	Alt. $(2 \times 6 - 4) \times 90 \div 6$ oe 360 – (90 + their x) ft if positive ww. reversed answers 2 marks. Alt. (y first) $\frac{360}{6} + 90$ M1 150 A1 (x=) 120 B1ft
16	**(a)** **(b)**	$15 \times 5.40 + 5 \times 3 - 80$ 16 20	M1 A1 B1ft	 ft their (a) ÷ 80 × 100 (provided profit >0) If 0 scored in parts (a) **and** (b) allow SC1 for 96 seen
				[14]

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17	**(a)**	5.1×10^8	B2	B1 for 5.1×10^n where n is an integer greater than 1 Calculator form; penalise 1 mark each form.
	(b)	29.4 × their (a)/ 100 art 1.5×10^8 oe	M1 A1cao	May revert to given value. Answer does not need to be in standard form. (e.g. 149940000) If M0, SC1 for 3.6×10^8
18	**(a)**	$(AB^2 =)\ 1200^2 + 900^2$ 1500	M1 A1	Indicated by 2250000 seen Allow art 1500 if sin or cos used and (b) done before (a).
	(b)	tan (=) 900/1200 oe art 36.9	M1 A1cao	For sin or cos method allow their (a) for M1 only.
19	**(a)**	263	B1	
	(b)	Correct construction with arcs	B2	B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
	(c)	109.5	B1	
				[12]
20	**(a) (i)**	50	B1	
	(a) (ii)	Sum divided by 15 43.9(3…….)	M1 A1	Indicated by answer of 43 to 45 or calculation shown. (Total = 659)
	(a) (iii)	Attempt to order estimates 47	M1 A1	Must be at least 7 values
	(b)	(Low) Extreme values oe	B1	Two very low values etc. Must not refer to extreme high values.
21	**(a)**	30 + 60 (seconds) 90 (seconds)	M1 A1	SC1 for 30 or 60 seen.
	(b)	D to E	B1	Any clear indication of section
	(c) (i)	1280(m)	B1	Allow 1270 to 1280
	(c) (ii)	400 used their (c)(i) divided by 400 (only) 3.2	B1 M1 A1ft	Also indicated by 310 or (400 – their (a)). ft correct to 3 significant figures.
				[13]

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1		–5	B1	
2		$0.79 < \frac{4}{5} < 81\%$	B1	Accept answer in alternative form provided equivalence is clear.
3		7 (h) 45 (min)	B1	
4		24	B1	
5		Negative	B1	
6	**(a)**	Jan	B1	Not just –10.2 but ignore if included.
	(b)	13.2	B1	Allow –13.2
7		125 + 180 or 360 – their **acute** angle at L 305	M1 A1	Must be clearly indicated in working or diagram.
				[9]
8	**(a)**	$\begin{pmatrix} -1 \\ 3 \end{pmatrix}$	B1	SC1 for **both** answers with components of (a) and co-ordinates of (b) reversed.
	(b)	(–2, –1)	B1	i.e. $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ for (a) and (–1, –2) for (b)
9		$3x^2 + 2xy$ or $x(3x + 2y)$	B2	B1 for $4x^2 - x^2 + 2xy$ or $x(4x – x + 2y)$seen. SC1 for answer $3x^2 – 2xy$ oe or $3x^2$ seen in final answer of 2 terms.
10		80°	B2	B1 for 35° or 45° seen on diagram or clear in working that angle *BCD* is 35º or angle *DCE* is 45°. Minimum - arc seen in diagram.
11	**(a)** **(b)**	Equilateral (Triangular) prism	B1 B1	Not equal. If qualified must be triangular (or triangle).
				[8]

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12		($y =$) $2x - 3$ oe	B2	B1 for $mx - 3$ or $2x + c$ where m and c are integers with $m \neq 0$ and $c \neq 3$
13	**(a)** **(b)** **(c)**	9 5 –2	B1 B1 B1	SC2 for 3^9, 2^5 and 6^{-2}. SC1 for two of the above
14	**(a)** **(b)**	270 ÷ 1.19886 225 to 226.891 1.20	M1 A1 B1	Allow division by 1.19 to 1.2 One and only one zero is essential.
15		$180 - \frac{360}{6}$ ($x =$) 120 ($y =$) 150	M1 A1 B1ft	Alt. $(2 \times 6 - 4) \times 90 \div 6$ 360 – (90 + their x) ft if positive ww. reversed answers 2 marks. Alt. (y first) $\frac{360}{6}$ + 90 M1 150 A1 (x=) 120 B1ft
16	**(a)** **(b)**	$15 \times 5.80 + 5 \times 3 - 90$ 12 13(.3…..)	M1 A1 B1ft	 ft their (a) ÷ 90 × 100 (provided profit >0) If 0 scored in parts (a) **and** (b) allow SC1 for 102 seen.
				[14]

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17	**(a)**	5.1×10^8	B2	B1 for 5.1×10^n where n is an integer greater than 1. Calculator form; penalise 1 mark each form.
	(b)	29.4 × their (a)/ 100 art 1.5×10^8oe	M1 A1cao	May revert to given value. Answer does not need to be in standard form. (e.g. 149940000) If M0, SC1 for 3.6×10^8
18	**(a)**	$(AB^2 =)\ 1100^2 + 800^2$ art 1360	M1 A1	Indicated by 1850000 seen.
	(b)	tan (=) (800/1100) oe 36 to 36.03	M1 A1cao	For sin or cos method allow their (a) for M1 only.
19	**(a)**	276	B1	
	(b)	Correct construction with arcs	B2	B1 without arcs, accuracy 2mm SC1 for 'correct' mirror image with arcs.
	(c)	119.5	B1	
				[12]
20	**(a) (i)**	50	B1	
	(a) (ii)	Sum divided by 15 44.1(3…..)	M1 A1	Indicated by answer of 43 to 45 or calculation shown. (Total = 662)
	(a)(iii)	Attempt to order estimates 48	M1 A1	Must be at least 7 values
	(b)	(Low) Extreme values oe	B1	Two very low values etc. Must not refer to extreme high values.
21	**(a)**	30 + 60 (seconds) 90 (seconds)	M1 A1	SC1 for 30 or 60 seen.
	(b)	D to E	B1	Any clear indication of section.
	(c) (i)	1280 (m)	B1	Allow 1270 to 1280
	(c) (ii)	400 used their (c)(i) divided by 400(only) 3.2	B1 M1 A1ft	Also indicated by 310 or (400 – their (a)). ft correct to 3 significant figures.
				[13]