UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2006 question paper

0580 and 0581 MATHEMATICS

0580/02 and 0581/02 Paper 2, maximum raw mark 70

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do 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*.

The minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the Report on the Examination for this session.

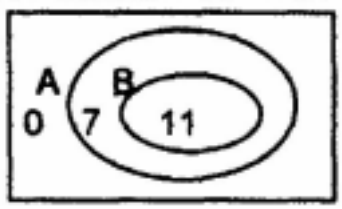
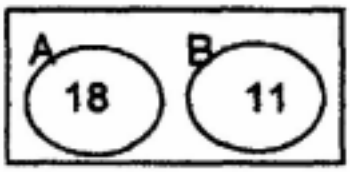
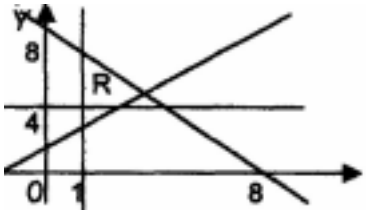
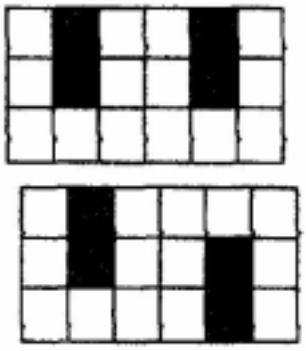
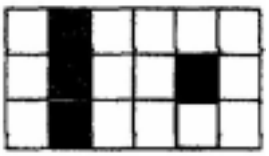
- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2006 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 1	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2006	0580 and 0581	02

1	4.496×10^9		**1**	
2	97 cao		**1**	
3	**(a)**	(–)590	**1**	
	(b)	Neptune	**1**	
4	1.73		**2***	Allow $\sqrt{3}$ **M1** for 1.15.... or 0.666....
5	21.3		**2***	**M1** ½ x 8 x 12 x sin26.4 oe
6	$\frac{x+5}{x(x+1)}$		**2***	**M1** $5(x + 1) – 4x$ or better
7	20		**2***	**M1** 2.5 ÷ 0.125 oe
8	$1/\sqrt{2}$, sin 47, ¾, $\pi/4$		**2***	**M1** for correct conversion to decimals 0.78(53..) 0.70(71...) 0.75 0.73(13..)
9	75000 76200		**2***	**B1 B1** or **M1** 6250, 6350 seen
10	**(a)**	$4 + 1½n$	**2***	**B1** for 4 **B1** for $1½n$ o.e
	(b)	154	**1** f.t	
11	**(a)**	13 cao	**1**	
	(b)	–4	**2***	**M1** $3x/4 + 3 = 0$ or $x = x/4 – 3$ or $4(x + 3) = x$ or $1 + 3/x = 1/4$ or better WWW
12	$x=10$ $y=3$		**3***	**M1** Multiplying and subtracting consistently or **M1** rearrange and substitute
13	$x = –5.2$		**3***	**M1** any two steps completed correctly **M1** any other two steps completed correctly
14	**(a)**	55, 40	**2**	**B1 B1**
	(b)	$\frac{16}{25}$	**1**	
15	**(a)**	$500 + 170x$	**1**	
	(b)	11	**2***	**M1** their **part (a)** = 2370
16	**(a)**	6000	**2***	**M1** 7200 ÷ 1.2 oe
	(b)	12.5	**2***	**M1** (8100 – 7200) ÷ 7200 oe

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2006	0580 and 0581	02

17	**(a)**		**2**	**B1** numbers **B1** labels
	(b)		**2**	**B1** numbers **B1** labels Allow 0 in an intersection of A and B
18	$w = 30$ $x = 22$ $y = 30$ $z = 52$		**1,1** 1 f.t. 1 f.t.	 $y = w$ $w + 22$
19	**(a)**	$(2x - 3)(2x + 3)$	**1**	
	(b)	$x(4x - 9)$	**1**	
	(c)	$(4x - 1)(x - 2)$	**2**	
20	**(a)**	m = –1 c = 8	**1,1**	
	(b)		**2***	
21	**(a)**		**1** **1**	or 
	(b)	plane of symmetry	**1**	
	(c)	3	**1**	

22	**(a)**	$p = 7.2$ $q = 6.4$	**2,2***	
	(b)	2304π	**2***	**M1** for x by vsf 64 allow 7240 for 2 marks
23	**(a)**	$\boldsymbol{a} + \boldsymbol{b}$, $\boldsymbol{a} - \boldsymbol{b}$, $3\boldsymbol{a} + \boldsymbol{b}$ $1\frac{1}{2}\boldsymbol{a} + \frac{1}{2}\boldsymbol{b}$	**1,1,2*** **1** f.t.	**M1** in **(iii)** for **(i)** + ***a*** + **(ii)** + ***b*** ½ **TP**
	(b)	4	**1**	
		TOTAL	**70**	