UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2010 question paper for the guidance of teachers

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/05 Paper 5 (Core), maximum raw mark 24

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International Examinations

INVESTIGATION THE FIBONACCI SEQUENCE

1

Term position	...	12	13	14	15
Fibonacci number	...	144	233	**377**	**610**

2
C1

1
1ft
C1 for showing working

ft for 610 – 233 + 'their 377'

2 **(a)**

Term position	3	**6**	9	**12**
Fibonacci number	2	8	**34**	**144**

1 for both in row 1

2

1 for both in row 2

(b) **(i)**

Term position	4	8	12	**16**
Fibonacci number	3	**21**	**144**	**987**

1

2ft for all 3 in row 2
–1 eeoo

ft from Q1 for 987 – 'their 377' + 'their 610'

3 is the 4th term...
Every 4th term...

5

(ii)

Term position	**5**	**10**	**15**	20
Fibonacci number	5	55	**610**	6765

2 for all 3 in row 1
–1eeoo

1ft

ft from Q1 for 'their 610'

5 is the 5th term...
Every 5th term in the... is a multiple of 5

1
1 for both entries

5

(c) Every 6th term in the...

1

3	**(a)** 5 by 8 rectangle drawn, divided into: one 5 by 5 square one 3 by 3 square one 2 by 2 square and two 1 by 1 squares	2	If not all correct 1 for any 2 squares shown excluding the two 1 by 1 squares	
	(b) 8 by 13 rectangle drawn, divided into: one 8 by 8 square one 5 by 5 square one 3 by 3 square one 2 by 2 square and two 1 by 1 squares	2	If not all correct 1 for any 2 squares shown	
	(c) **(i)**			
	Size of rectangle: 1 by 1 | 1 by 2 | 2 by 3 | 3 by 5 | 5 by 8 | 8 by 13 Least number of squares: 1 | **2** | **3** | 4 | **5** | **6**	1	1 for all 4 entries	
	(ii) 8	1		
	(iii) 89 144	2	1 each	
	(d) $n - 1$	1		
			[Total: 24 + C1 = 25 scaled to 24]	