CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2015 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/63 Paper 6 (Extended), maximum raw mark 40

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, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

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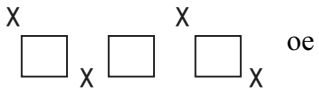
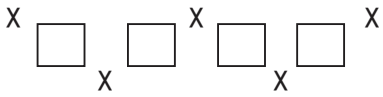
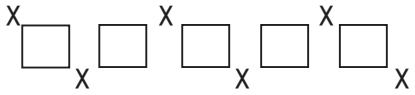
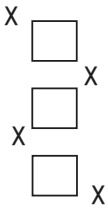
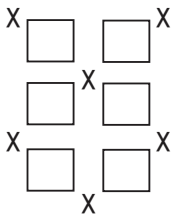
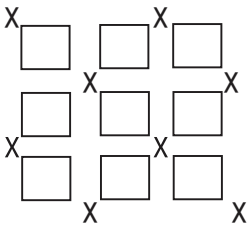
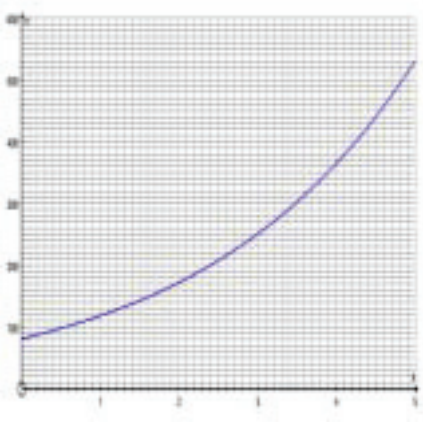
Abbreviations

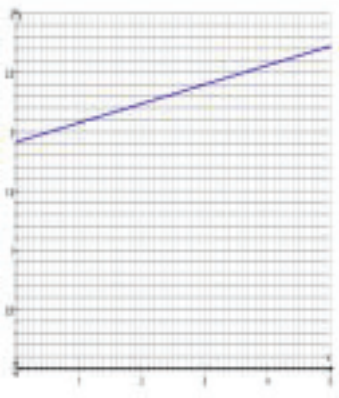
cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfww	not from wrong working
soi	seen or implied

A INVESTIGATION	**SECURITY CAMERAS**		
Question	**Answer**	**Mark**	**Part Marks**
1 (a) (i)	 oe	**1**	
(ii)	 oe	**1**	
(iii)	 oe	**1**	
(b)	$n + 1$	**1**	
2 (a) (i)	 oe [Minimum =] 4	**1**	**B1** for diagram **and** 4
(ii)	 oe	**1**	
(iii)	 oe [Minimum =8]	**1**	
(b)	$2n + 2$ oe	**1**	**C** opportunity

A INVESTIGATION SECURITY CAMERAS

Question	Answer	Mark	Part Marks
3	9 12	**1** **1**	 **C** opportunity
4 (a)	<table><tr><th></th><th colspan="6">Number of squares in each row</th></tr><tr><th></th><th>1 square</th><th>2 squares</th><th>3 squares</th><th>4 squares</th><th>5 squares</th><th>*n* squares</th></tr><tr><td>One row</td><td></td><td></td><td></td><td></td><td>**6**</td><td></td></tr><tr><td>Three rows</td><td></td><td></td><td>**8**</td><td>**10**</td><td>**12**</td><td></td></tr><tr><td>Five rows</td><td></td><td></td><td></td><td>**15**</td><td>**18**</td><td></td></tr><tr><td>Seven rows</td><td></td><td>**12**</td><td>**16**</td><td>**20**</td><td>**24**</td><td>**4*n* + 4**</td></tr></table> oe	**2**	**B1** for 8, 9 or 10 number cells correct **B1** for $4n + 4$ oe
(b)	$\frac{1}{2}(r+1)n + \frac{1}{2}(r+1)$ oe	**1**	
(c)	1, 3, 7, 15	**1**	**C** opportunity
5 (a)	10 13	**1**	**C** opportunity
(b)	$\frac{3n}{2} + 1$	**1**	**C** opportunity
6 (a)	<table><tr><th></th><th colspan="5">Number of squares in each row</th></tr><tr><th></th><th>2 squares</th><th>4 squares</th><th>6 squares</th><th>8 squares</th><th>*n* squares</th></tr><tr><td>Two rows</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Four rows</td><td></td><td></td><td>**17**</td><td>**22**</td><td></td></tr><tr><td>Six rows</td><td></td><td>**17**</td><td></td><td>**31**</td><td></td></tr><tr><td>Eight rows</td><td></td><td>**22**</td><td>**31**</td><td></td><td>$\frac{9n}{2} + 4$</td></tr></table>	**2**	**B1** for 4, 5 or 6 number cells correct **B1** for $\frac{9n}{2} + 4$ oe
(b)	$\frac{1}{2}(r+1)n + \frac{1}{2}r$ oe	**1**	
Communication seen in two of **2(b)**, **3**, **4(c)**, **5(a)**, **5(b)**		**1**	

B MODELLING BACTERIA			
Question	**Answer**	**Mark**	**Part Marks**
1 (a)	Correct curve between $x = 1$ and $x = 5$ 	**2**	**B1** for 5 points correctly plotted (within 1 mm) **B1** for curve through plotted points (within 1 mm)
(b)	Answer in range 80 to 100	**1**	
2 (a)	$[n =] pq^x$	**1**	
(b)	$[q =]$ 1.48	**1FT**	**FT** $n = px^2 + q$ in *their* (a) **C** opportunity
(c)	$[p =]$ 77.1[...]	**1FT**	**FT** *their q* in $n = pq^x$ Or *their q* in $n = px^2 + q$ **C** opportunity
(d) (i)	Answer in range 1099 to 1200	**1FT**	**FT** *their p* and *their q* in non-linear models **C** opportunity
(ii)	77[.1...]	**1FT**	
(iii)	Correct statement about similarity of answers	**1FT**	**FT** *their* 1(b) and *their* 2(d)(ii)

B MODELLING BACTERIA			
Question	**Answer**	**Mark**	**Part Marks**
3 (a)	2.23 2.4[0] 2.57 2.72	**2**	**B1** for accuracy to 3 s.f . and **B1** for all correct if rounded
(b)	3[.0] 2.4[…]	**1**	Correct to 1d.p.
(c)		**2FT**	**B1FT** for 5 correctly plotted points **B1FT** for correct ruled line between $x = 1$ and $x = 5$ through (3, *their* 2.4)
(d) (i)	1.9 to 1.95	**1**	**FT** *their* correct line of best fit if outside range
(ii)	0.15 to 0.17	**1**	**C** opportunity
(e)	890 to 1390	**1**	**C** opportunity
(f)	79 to 90	**1**	
4	Correct statement comparing the <u>models</u>	**1FT**	**FT** *their* 3(e) and *their* 2(d)(i)
Communication seen in two of **2(b)**, **2(c)**, **2(d)(i)**, **3(d)(ii)**, **3(e)**		**1**	