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CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/51**

Paper 5 (Core) **October/November 2016**

MARK SCHEME

Maximum Mark: 24

Published

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Abbreviations

awrt answers which round to
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

Question	Answer	Mark	Part Marks
1	4 small and 1 large oe	**1**	
2	9 4 1 14	**2**	**B1** for 9 and 1 **B1FT** for sum of *their* 1, 4 and *their* 9
3	16 9 4 1 30	**2**	**B1** for either 9 or 4 If reverse order in question 2 then **SC2** for reverse order
4 (a)	Size Total 1 by 1 1 1 2 by 2 **4** **1** 5 3 by 3 **9** 4 **1** 14 4 by 4 **16** **9** **4** **1** 30 5 by 5 **25** **16** **9** **4** **1** **55** 6 by 6 **36** **25** **16** **9** **4** **1** **91**	**3**	**B1** for rows 2 to 4 correct **B1** for row 5 correct **B1** for row 6 correct If 0 scored **SC1** for one of columns 2, 3 or 4 correct If reverse order in question 2 then **SC1** for rows 2 to 4 with reverse sequence **SC1** for row 5 with reverse sequence **SC1** for row 6 with reverse sequence
(b)	Square [numbers]	**1**	
(c)	204	**2**	**B1** for 49 and 64 seen C opportunity
(d)	n^2 $(n-1)^2$ $(n-2)^2$ $(n-3)^2$ **.....** $(n-5)^2$	**2**	**B1** for 2 correct
(e)	$(n-11)^2$ oe	**1**	
(f) (i)	256	**1**	C opportunity
(ii)	10	**1**	C opportunity

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Question	Answer	Mark	Part Marks
5 (a)	$1 = \frac{1}{3}+\frac{1}{2}+\frac{1}{6}+d$ so $d = 0$ oe	**1**	
(b)	$\frac{4^3}{3}+\frac{4^2}{2}+\frac{4}{6}=30$ soi	**1**	
(c)	385	**2**	**M1** for $\frac{10^3}{3}+\frac{10^2}{2}+\frac{10}{6}$ or $91 + 7^2 + 8^2 + 9^2 + 10^2$ oe
6 (a)	The upper right corner of the large square can be put on any of the nine points in the 2 by 2 square oe or Use the 5 surrounding squares and the 4 squares inside the 2 by 2 square oe	**1**	
(b)	Two from: 10 by 10 on 14 by 14 11 by 11 on 15 by 15 12 by 12 on 16 by 16 etc.	**2**	**B1** for one C opportunity
Communication: Seen in two of the following questions		**1**	
4 (c)	For showing 91 + 49 + 64 or 1 + 4 + 9 + 16 + 25 + 36 + 49 + 64 or tabular form (without plus signs)		
4 (f) (i)	For $(n – 4)^2$ or *their* $(20 – 4)^2$ oe		
4 (f) (ii)	For $(n – 4)^2 = 36$ or $(10 – 4)^2 = 36$ or $\sqrt{36} = 6$ or 6 + 4 = 10 or 8 | 9 | 10 16 | 25 | 36 or for a 10 by 10 grid there are 100, 81, 64, 49, **36** squares		
6 (b)	For a square of side 4 or 4 by 4 seen or used		

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