Question Number	Scheme	Marks
5 (a)(i)	$\sum x^2 = 10\left(148.05 + 163.5^2\right)[= 268803]$ *	
	or	
	$148.05 = \frac{\left(\sum x^2\right)}{10} - 163.5^2 \Rightarrow \frac{\sum x^2}{10} = 148.05 + 163.5^2 \Rightarrow \sum x^2 = 268803$ *	B1*
	or	
	$148.05 = \frac{268803}{10} - 163.5^2 = 148.05 \Rightarrow \sum x^2 = 268803$ *	
(ii)	$\sum y^2 = 10\left(205.25 + 61.5^2\right)$	M1
	$\sum y^2 = 39875$	A1
		(3)
(b)(i)	$S_{yy} = 39875 - \frac{615^2}{10}[= 2052.5]$ or $S_{yy} = 205.25 \times 10[= 2052.5]$	
	or	B1*
	$S_{yy} = 39875 - 10 \times 61.5^2[= 2052.5]$	
(ii)	$S_{xy} = 102230 - \frac{1635 \times 615}{10}$	M1
	$= 1677.5$	A1
		(3)
(c)	$\frac{'1677.5'}{\sqrt{1480.5 \times 2052.5}} = 0.9623...$ awrt 0.962	M1 A1
		(2)
(d)	e.g. [Strong] positive correlation	B1ft
		(1)
(e)	e.g. The point (163.5, 61.5) is equal to $(\bar{x}, \bar{y})$	M1
	So PMCC will remain the same	A1
		(2)

	Notes	Total 11
(a)(i)	**B1***	for a correct expression for $\sum x^2$ on its own with sight of 10, 148.05 and 163.5 (or 26732.25) in their solution **or** if they have an equation with $\sum x^2$ as the only unknown, they need an intermediate stage of working before proceeding to 268803 Alternatively, show by verification that $\sum x^2 = 268803$ with a minimal conclusion. There should be no errors seen.

(ii)	**M1**	for a correct method to find $\sum y^2$ May be implied by 39875
	A1	39875 (correct answer scores M1A1)
(b)(i)	**B1***	for a correct expression for S_{yy}
(ii)	**M1**	for a correct method for S_{xy} May be implied by 1677.5
	A1	1677.5 oe (correct answer scores M1A1)
(c)	**M1**	for a correct method to find r using $S_{yy} = 2052$ and ft on their S_{xy} Does not need to be evaluated so do not be concerned by a value for r that is outside the valid range $[-1, 1]$. May be implied by awrt 0.96
	A1	awrt 0.962
(d)	**B1ft**	for indicating positive correlation provided $0 < r < 1$. Allow e.g. as x increases, y increases or positive linear relationship but positive relationship is B0 (too vague) ft on their r with a conclusion about correlation consistent with their value e.g. if $\lvert r \rvert < 0.4$ allow no correlation oe May conclude negative correlation if $-1 < r < 0$
(e)	**M1**	for a correct reason about the point being equal to the means of x and y e.g. the values are the same as the means (of x and y)
	A1	for stay the same oe **Note that M0A1 is not possible**