Question Number	Scheme	Marks
6 (a)(i)	$x = 1.2 + 0.2(1.4x + 1.5)$ o.e or $y = 1.4(1.2 + 0.2y) + 1.5$ o.e	M1
	$x = \frac{25}{12}$ $y = \frac{53}{12}$	A1A1
(ii)	$\left[\sum x = \right] \frac{25}{12} \times 12 \left[= 25\right]$	A1*
		(4)
(b)	$\left[\sum y = \right]' \left(\frac{53}{12}\right)' \times 12 = 53$	M1A1ft
	$S_{xy} = \frac{6961}{60} - \frac{(25 \times '53')}{12} = 5.6$	M1 A1
		(4)
(c)	$\frac{'5.6'}{S_{xx}} = 1.4$ and $\frac{'5.6'}{S_{yy}} = 0.2$ $S_{xx} = 4$ and $S_{yy} = 28$ $r = \frac{'5.6'}{\sqrt{'4' \times '28'}} = 0.5291...$	$\frac{'5.6'}{\sqrt{\frac{'5.6'}{1.4} \times \frac{'5.6'}{0.2}}}$ $\frac{5.6}{\frac{5.6}{\sqrt{1.4 \times 0.2}}}$ $\sqrt{1.4 \times 0.2} = 0.5291$
		$\frac{S_{xy}}{S_{xx}} = 1.4$ and $\frac{S_{xy}}{S_{yy}} = 0.2$ $r^2 = 1.4 \times 0.2$ awrt 0.529
		M1 A1 M1 dA1
		(4)

		Notes	**Total 12**
(a)(i)	**M1**	For either of the two equations o.e or an attempt to solve the two equations simultaneously. May be implied by $x = \frac{25}{12}$ / 2.08 or better or $y = \frac{53}{12}$ / 4.42 or better	
	A1	For either $x = \frac{25}{12}$ / 2.08 or better or $y = \frac{53}{12}$ / 4.42 or better	
	A1	For both $x = \frac{25}{12}$ / 2.08 or better and $y = \frac{53}{12}$ / 4.42 or better (May be written as a coordinate) **NB This is M1 on EPEN**	
(ii)	**A1***	For $\frac{25}{12} \times 12$ Allow use of $\sum x$ rather than $\bar{x}$ e.g. $\sum x = 14.4 + 0.2\left(1.4\sum x + 18\right)$ oe As the answer is given no incorrect working must be seen. **NB Working must be shown**	
(b)	**M1**	For $'\left(\frac{53}{12}\right)' \times 12$ ft their y coordinate. Allow use of $\sum y$ rather than $\bar{y}$ e.g. $\sum y = 1.4\left(14.4 + 0.2\sum y\right) + 18$ oe	
	A1ft	For $\sum y = 53$ or ft their y coordinate × 12 (An answer of exactly 5.6 implies M1A1)	
	M1	Use of $S_{xy} = \frac{6961}{60} - \frac{25 \times '\sum y'}{12}$ ft their $\sum y$ If $\sum y$ is not stated then M0 is awarded	
	A1	5.6 (Allow awrt 5.6)	

(c)	**M1**	For use of the gradient to find S_{xx} and S_{yy} ft their S_{xy} or use of $\frac{S_{xy}}{\sqrt{\frac{S_{xy}}{1.4}\times\frac{S_{xy}}{0.2}}}$ or setting both $\frac{S_{xy}}{S_{xx}}$ and $\frac{S_{xy}}{S_{yy}}$ equal to their respective gradients
	A1	$S_{xx}=4$ and $S_{yy}=28$ or $\frac{S_{xy}}{\sqrt{1.4\times0.2}}$ or $\frac{\left(S_{xy}\right)^2}{S_{xx}\times S_{yy}}=1.4\times0.2$
	M1	For a correct expression for *r* ft their S_{xy}, S_{xx} and S_{yy} or $\sqrt{1.4\times0.2}$ If answer is incorrect then you must see their stated values substituted into a correct expression for *r*. An answer of $\frac{\sqrt{7}}{5}$ implies M1A1M1 only
	dA1	Dependant on all previous marks being awarded. awrt 0.529

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