Question Number	Scheme	Marks
6 (a)	$S_{tt} = 14837 - \frac{635^2}{30} \quad \left(= \frac{8377}{6} = 1396.1666...\right)$	M1
	$r = \frac{-1648.83}{\sqrt{2396.97 \times 1396.166...}} = -0.9013136...*$	A1*
		(2)
(b)	Possible **linear** relationship between t and w / points lie close to a (straight) line	B1 B1
	a negative gradient/slope / as w increases t decreases	
		(2)
(c)		
	$b = \frac{S_{wt}}{S_{ww}} = \frac{-1648.83}{2396.97}$	M1
	$= -0.68788\ldots$ awrt **–0.69**	A1
	$a = \frac{635}{30} - ('-0.68788...') \times \frac{839}{30} = 40.404...$	M1
	$t = 40.4 - 0.688w$	A1
		(4)
(d)	On average as **score increases by 1**, **time decreases by '0.688'** minutes	B1ft
		(1)
(e)(i)	(pmcc would) stay the same	B1
(ii)	(Magnitude of gradient would) decrease	B1
(iii)	(Intercept would) stay the same	B1
		(3)

	Notes	Total 12
(a)	**M1**	Use of correct formula to find S_{tt} implied by 1396 or better
	A1*	Correct calculation shown to find r **and** answer awrt –0.901
(b)	**B1**	One correct feature Mention of linear relationship/close to a straight line oe Just mentioning the word line is not enough – must imply the points/graph form a (straight) line **or** negative gradient/slope oe allow eg downward gradient for negative gradient Do not allow negative correlation/negative trend/negative relationship. A single comment eg 'The gradient of the line is negative' scores B1B0 (since the mention of line here does not imply that the points form a line)
	B1	Two correct features Mention of linear relationship/close to a straight line oe Just mentioning the word line is not enough – must imply the points/graph form a (straight) line **and** negative gradient/slope oe allow eg downward gradient for negative gradient Do not allow negative correlation/negative trend/negative relationship. A single comment eg 'The gradient of the line is negative' scores B1B0 (since the mention of line here does not imply that the points form a line)
(c)	**M1**	Correct method for b (implied by awrt –0.69)
	A1	awrt –0.69 (may be seen in final equation)
	M1	Correct method to find a ft their b (implied by awrt 40.4)
	A1	Fully correct equation must be in terms of t and w with awrt 40.4 and awrt –0.688. No fractions.
(d)	**B1ft**	For a numerical interpretation which must mention score (oe) **and** time/minutes (oe) **or** w **and** t, ft their '–0.688'. Condone eg as score increases by 1, time increases by '–0.688' ft interpretation must be compatible with the sign of their gradient.
(e)(i)	**B1**	oe allow –0.901
(ii)	**B1**	oe condone 'halves'
(iii)	**B1**	oe allow '40.4'