Question Number	Scheme	Marks
6. (a)	$\overline{f} = 10.8 + 0.748\overline{p} = 10.8 + 0.748(62.4)$ awrt **57.5**	M1 A1 (2)
(b)	For each additional **mark** scored on the **pre-test**, the average **mark** on the **final exam increases** by 0.748	B1 (1)
(c)	The statement is not reliable as there is no data below 19 (extrapolation).	B1 (1)
(d)	76	B1 (1)
(e)	$p < 10.8 + 0.748p$ $0.252p < 10.8$ $p <$ awrt **42.9**	M1 M1 A1 (3)
(f)	[No change to] $S_{pp} = 15\ 573.76$	
	$\sum pf = 133486 - 2842 + 9016$ $[= 139660]$ / $\sum pf$ increases by $98(92-29)[= 6174]$	M1
	$\sum f = "57.47" \times 34 + (92-29)$ or $\frac{133486 - 11648.35}{2120} \times 34 + (92-29)$ $[= 1954 + 92 - 29 \approx 2017]$ / $\frac{\sum p \sum f}{n}$ increases by $\frac{2120(92-29)}{34}$ $[= 3928.235...]$	M1
	$S_{pf} = "139660" - \frac{2120 \times "2017"}{34}$ [= 13894…] / S_{pf} increases by '6174' –'3928.235' [=2245.764…]	dM1
	$b = \frac{"13894..."}{15573.76}$ [= 0.89…] / $b = \frac{11648.35 + "2245.764"}{15573.76}$	M1
	awrt **0.9**	A1 (5)
	Notes	**[13]**
(a)	M1 for substituting 62.4 into the regression equation. Allow answer between 57 and 58 A1 awrt 57.5	
(b)	B1 must include context and reference to 0.748 Needs to refer to each mark being 0.748 or a multiple of eg 10 marks is 7.48 Allow equivalent words eg score/ point for mark, pre or test for pre-test, exam or final for final exam	
(c)	B1 Not reliable with correct supporting reason eg it (10.8)is an outlier, outside the range	
(d)	B1 76 cao	
(e)	1st M1 for setting up inequality in p only or for drawing the line $f = p$ on the graph. May be implied by $p < n$ (ignore any lower limit) where $40 \leqslant n < 46$ (allow incorrect inequality sign or =) Allow trial and improvement. 2nd M1 rearranging to the form $ap < b$ with correct inequality sign. Allow $(1-0.748)p < 10.8$ May be implied by $p < n$ (ignore any lower limit) where $42 < n < 44$ A1 $p <$ awrt 42.9 (ignore any lower limit) ISW	
(f)	1st M1 Correct method to find new $\sum pf$ or change in $\sum pf$ 2nd M1 Correct method to find new $\sum f$ or change in $\frac{\sum p \sum f}{n}$ Allow 2018 or 2017 3rd dM1 dep on both previous method marks being awarded. Correct method to find new S_{pf} with their changed $\sum pf$ and $\sum f$ or change in S_{pf} 4th M1 expression for $b = \frac{'S_{pf}'}{15573.76}$ with their changed S_{pf} and unchanged S_{pp} A1 awrt 0.9 (from correct working)	