Question Number	Scheme	Marks
5. (a)	$H_0 : \mu_H - \mu_M = 15$ $\quad H_1 : \mu_H - \mu_M > 15$	B1
	$z = \dfrac{56.3 - 39.8 - 15}{\sqrt{\dfrac{27.2}{38} + \dfrac{18.5}{45}}}$	M1 M1
	$= 1.4130\ldots$ awrt 1.41	A1
	CV = 1.6449 (or better) or p = awrt 0.0788	B1
	Do not reject H_0/Not significant	M1
	There is not sufficient evidence to support the professor's claim/there is not sufficient evidence to suggest that undergraduates studying History type more than 15 words/minute faster than undergraduates studying Maths.	A1 (7)
(b)	$s^2 \approx \sigma^2$ for **both** History and Maths	B1
	Assume sample sizes are large enough so that CLT applies or $\bar{X}$ is normally distributed for **both**	B1 (2)
		[9]
	Notes	
(a)	1st B1 both hypotheses correct in terms of μ_H and μ_M Allow equivalent rearrangements. Allow other letters as long it is clear which is History and which is Maths. Must be attached to H_0 and H_1	
	1st M1 for $z = \dfrac{a - b - 15}{\sqrt{\dfrac{c}{38} + \dfrac{d}{45}}}$ with at least 2 of a, b, c or d correct (allow ±)	
	2nd M1 for $z = \dfrac{56.3 - 39.8 - 15}{\sqrt{\dfrac{27.2}{38} + \dfrac{18.5}{45}}}$ (allow ±)	
	1st A1 awrt 1.41	
	2nd B1 for CV = ±1.6449 and compatible sign with their test statistic (allow p = awrt 0.0788)	
	3rd M1 correct statement consistent with their test statistic and CV (no contradictory non-contextual comments) May be implied by correct contextual comment.	
	2nd A1 contextual conclusion that is consistent with their test statistic and their CV. Must mention professor's claim or History, Maths and typing (oe).	
(b)	1st B1 must mention both. Allow $s \approx \sigma$ for both History and Maths	
	2nd B1 either correct assumption	