Question Number	Scheme	Marks
2 (a)	$\sum d^2 = 1+4+4+0+0+36+9+4+4+4 \left[= 66\right]$	M1
	$r_s = 1 - \dfrac{6\times '66'}{10\left(10^2-1\right)} = 0.6$	M1 A1
		(3)
(b)	$H_0 : \rho = 0 \qquad H_1 : \rho > 0$	B1
	Critical Value $r_s = 0.7455$ or CR: r_s …0.7455	B1
	e.g. Do not reject H_0 **or** e.g. not significant **or** e.g. does not lie in the critical region	M1
	e.g. there is insufficient evidence of a **positive correlation** between the **ranks** of **Judge 1** and **Judge 2**	A1ft
		(4)

	Notes		**Total 7**
(a)	**M1**	For finding the difference between ranks of judge 1 and judge 2 and evaluating $\sum d^2$. May be implied by 66. (Allow one error). May be implied by 0.6 or 0.4	
	M1	For using $1-\dfrac{6\sum d^2}{10(99)}$ with their $\sum d^2$ (this value cannot just be an attempt at adding the differences). May be implied by 0.6	
	A1	0.6 oe (a correct answer scores 3/3)	
(b)	**B1**	For both hypotheses correct. Must be in terms of ρ or ρ_s (condone if it appears as p) Must be attached to H_0 and H_1 (do not accept h for H) Do not allow hypotheses in words on their own.	
	B1	For CV of 0.7455 Allow $\pm$ and do not be concerned by use of a strict or inclusive inequality if a critical region is stated	
	M1	A correct statement independent of hypotheses ft part (a) $\left\|r_s\right\| < 1$ and their CV where $\left\|\text{CV}\right\| < 1$ with compatible signs. No context needed but do not allow contradicting non contextual statements. Condone e.g. "accept H_o", "reject H_1" lies in acceptance region. A correct contextual conclusion may imply this mark.	
	A1ft	Dependent on previous method mark and $\left\|r_s\right\| < \left\|\text{CV}\right\| < 1$. For a correct conclusion suggesting that there is insufficient evidence of a positive correlation between the ranks of the judges. Must mention <u>positive correlation</u> , <u>ranks</u> and the <u>judges</u> oe Condone e.g. "there isn't positive correlation between the ranks of the judges". Follow through their r_s with 0.7455 Note that M0A1ft is not possible. Note that a correct contextual conclusion on its own scores M1A1ft	
	Note	**Two-tailed test** Applying a two-tailed test scores a maximum of B0B0M1A0 allowing access to the M1 mark only	