Question Number	Scheme	Marks
2 (a)	<table><tr><td>Kettle</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td></tr><tr><td>Price (£)</td><td>99.99</td><td>14.99</td><td>34.97</td><td>49.99</td><td>19.97</td><td>29.99</td><td>8.99</td></tr><tr><td>Aarush Rank</td><td>2</td><td>5</td><td>4</td><td>1</td><td>7</td><td>3</td><td>6</td></tr><tr><td>Actual rank</td><td>1</td><td>6</td><td>3</td><td>2</td><td>5</td><td>4</td><td>7</td></tr></table>	M1
	$\sum d^2 = 1+1+1+1+4+1+1$ [=10]	M1
	$r_s = 1-\frac{6\times"10"}{7\times 48}$	dM1
	$= 0.8214...$ awrt 0.821	A1cso
		(4)
(b)	$H_0 : \rho = 0 \quad H_1 : \rho > 0$	B1
	Critical Value $r_s = 0.7143$	M1
	Either reject H_0/ result is significant/ r_s does lie in the critical region	M1
	Conclude there is evidence to support that Aarush can **rank** the **kettles** in order of **price**.	A1
		(4)
(c)	Aarush has already ranked them or the order / price is not normally distributed	B1
		(1)
(d)	Kettle *A* and *D* would have a tied rank (1.5)	B1
		(1)
	Notes	Total 10
(a)	M1 for an attempt to rank Aarush's order and actual order (at least 4 correct in either row)	
	M1 for finding differences between each pair of their ranks and evaluating $\sum d^2$ imp by A1	
	dM1 dependent on previous 2 M marks being awarded. Using $r_s = 1-\frac{6\times\sum d^2}{7\times 48}$	
	A1 awrt 0.821 or allow $\frac{23}{28}$	
(b)	B1 both hypotheses stated in terms of ρ or ρ_s (condone if appears as p – it cannot be in terms of *r*) If their $r_s < 0$ condone $H_1 : \rho < 0$	
	M1 allow |their CV| = 0.7143 or better	
	M1 for a correct non-contradictory statement consistent with their r_s ($r_s < 1$) and their CV if signs are compatible. Allow eg Accept H_1 or for correct conclusion in context on its own.	
	A1 dependent on all of the previous method marks but independent of hypotheses. For correct conclusion in context which must be rejecting H_0 and has **rank**, **kettles** and **price** and no contradictory statements.	
(c)	B1 for a correct reason e.g. (some of) the data has already been ranked, Aarush has not given the prices (only the ranks) oe. Condone "it is ordinal data"	
(d)	B1 for the idea that both *A* and *D* will have same rank (1.5) If the rank is stated it must be 1.5. Must mention both *A* and *D* (or imply) and allow explanations such as "equal rank", "average rank". Condone "order" for rank. If an incorrect rank or letter pairing is given then B0.	