2. At a dog show, 5 Great Dane dogs were ranked by two judges, judge X and judge Y

Spearman's rank correlation coefficient between the judges' ranks is calculated and a test for positive correlation is carried out at the 5% significance level.

(a) State suitable hypotheses for the test.

(1)

Given that the result of the hypothesis test was to reject H_0

(b) show that the largest possible value of $\sum d^2$ is 2

(3)

The table below gives the rank order for judge X

Dog	*A*	*B*	*C*	*D*	*E*
Judge X	1	2	3	4	5

Given that $\sum d^2$ takes its largest possible value,

(c) find a possible order for judge Y's rankings.

(2)

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Question 2 continued

(Total for Question 2 is 6 marks)