1. Nine swimmers, *A*, *B*, *C*, *D*, *E*, *F*, *G*, *H* and *I*, competed in both a 100 m freestyle race and a 200 m freestyle race. The positions of each swimmer were recorded in each of the two races.

The table below shows the results.

Swimmer	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*
Position in 100 m race	6	4	2	8	3	7	1	5	9
Position in 200 m race	7	5	4	9	3	6	1	2	8

(a) Calculate Spearman's rank correlation coefficient for these data.
Show your working clearly.

(3)

(b) Stating your hypotheses clearly, test at the 5% level of significance, whether or not there is evidence to suggest that the higher a swimmer's position is in the 100 m freestyle race, the higher their position is in the 200 m freestyle race.

(4)

(c) Without recalculating the coefficient, explain how Spearman's rank correlation coefficient would change if swimmer *E* was disqualified from both the 100 m freestyle race and the 200 m freestyle race.

(2)

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Question 1 continued

(Total for Question 1 is 9 marks)