

A college uses two assessments,  $X$  and  $Y$ , when interviewing applicants for research posts at the college. These assessments have been used for a large number of applicants this year.

The scores for a random sample of 9 applicants who took assessment  $X$  are as follows.

21.4    24.6    25.3    22.7    20.8    21.5    22.9    21.3    22.3

The scores for a random sample of 10 applicants who took assessment  $Y$  are as follows.

20.9    23.5    24.8    21.9    23.4    24.0    23.8    24.1    25.1    25.8

The interviewer believes that the population median score from assessment  $X$  is lower than the population median score from assessment  $Y$ .

Carry out a Wilcoxon rank-sum test, at the 1% significance level, to test whether the interviewer's belief is supported by the data.

[7]