The statement in the question was false and to disprove it, you had to show that 5 elements can be sorted with at most 7 comparisons. The correct way to show this is to construct a comparison based algorithm that sorts the 5 elements with 7 comparisons in worst case. Following is one such algorithm:

Compare A to B and C to D. Without loss of generality (WLOG), suppose A > B and C > D. Compare A to C. WLOG, suppose A > C. Sort E into A-C-D. This can be done with two comparisons. Sort B into {E, C, D}. This can be done with two comparisons, for a total of seven. We are done at this point as we already know that A > B.

Marking Scheme:
1 mark - Recognising that the statement is false.
2 marks - Realizing that if an algorithm exists, then it must use exactly 7 moves.
3 marks - Trying to construct a comparison based algorithm and at least getting the first two comparisons (<A,B> and <C,D>) right.
6 marks - Full solution correct.

A common incorrect solution was to use the decision tree argument to show that the lower bound on the number of comparisons required to sort 5 elements is log(5!) $\approx$6.9 and then argue that as 7 > 6.9, therefore the statement is false. This is incorrect as the existence of a lower bound does not necessarily mean that an algorithm exists that will achieve the lower bound. We have given such answers 2 marks.