Q6

There can be no comparison based sorting algorithm that performs sorting with a complexity less than O(nlogn). While there may be special cases where the best case performs in a complexity better than O(nlogn) but that cannot hold for random data. - 2 marks

In the worst case any comparison based sorting algorithm will sort with a time complexity worse or equivalent to O(nlogn) ie in the worst case the complexity of a comparison based sorting algorithm will be at best equivalent to O(nlogn) – 2 marks

Let L(n) be the running time of an algorithm A(say), then g(n) is the Lower Bound of A if there exist two constants C and N such that L(n) <= C*g(n) for n > N.

OR

any other correct definition or significance of lower bound – 1 mark