Insertionsort is the worst type of sorting algorithm compared to the other ones in this assignment. For most cases its time complexity is quadratic. However it works fine when sorting small arrays, non-recursive, easy to implement and its best time complexity is linear (when the list is already sorted).

Quicksort average time complexity is n*log n which means that quicksort is fast for most inputs, however it might be heavy for small sized arrays, where insertionsort should be used instead. Also in rare cases the time complexity of quicksort can be quadratic, but it can usually be avoided using a good choice of pivot elements.

Heap sort has a fixed time complexity of n*log n since it does not care about the initial state of the array. This can be seen as a double edged sword since for certain scenarios it can be seen as an advantage to know the time complexity beforehand. On the other hand, for example if the array is already sorted, it is quite ineffective to have a time complexity of n*log n.