8) Explain, why in worst case scenario the quick sort algorithm runs more slowly than Merge Sort

In best case, each partition can cut the array roughly in half. In worst case (pivot is greatest or least value) the array is not partitioned at all. This means that while merge sort always splits the array in half, quick sort does not.

9) In practice, quick sort runs slightly faster than Merge Sort. This is because the partition function can be run "in place" while the merge function can not. More clearly explain what it means to run the partition function "in place".

No helper arrays are made for quicksort to function. The array to be sorted itself is directly modified in quicksort.