

1.
 - A. The worst complexity here would be $O(\ln x)$ this would be because it would have to traverse an entire branch of the heap in order to get to its place.
 - b. Delete min would have the same complexity as concatenate. Concatenate traverses along the branch of a tree in order to get to the proper position so again $O(\ln x)$.
 - c. Merge would be the same $O(\ln x)$

2, The average case Complexity is about the same as the worst case. Since the swap function has to implement anyway.