1. 
\(12, 10, 11, 5, 8, 7, 9, 2, 3, 4, 1, 6\).

2. 
Extract-Max \((A[1..n])\) 
if heapsize\[A\] < 1 then return error; 
x \(\leftarrow\) \(A[1]\) 
\(A[1] \leftarrow A[\text{heapsize}[A]]\) 
heapsize\[A\] \(\leftarrow\) heapsize\[A\] – 1 
MaxHeapify \((A, 1)\) 
return(x)

3. 
Maintain a variable, say, \(time\), initialized to 0. 
Initialize an empty priority queue \(PQ\). 
When inserting an element \(x\) to \(PQ\), let priority\((x)\) \(\leftarrow time^{++}\). 
PQ will behave like a stack.

4. 

**Comparison tree for quicksort with three elements \((a_1, a_2, a_3)\)**

![Comparison tree for quicksort with three elements](image)