Handwriting Assignment #2
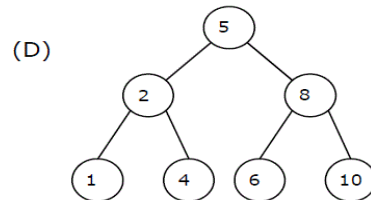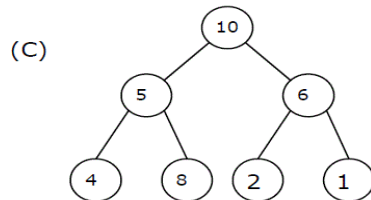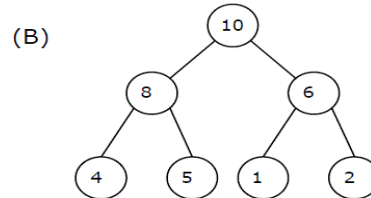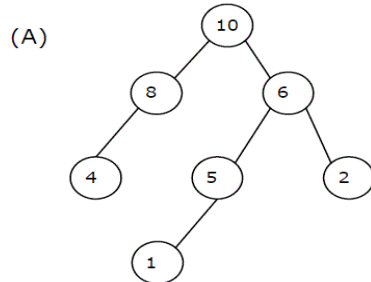
1. Which of the following is a max-heap?

(A)

(B)

(C)

(D)

2. Draw the following list of numbers as a heap with the first number as the root: 77, 66, 55, 44, 60, 33, 55

3. What is the minimum and maximum numbers of elements in a heap of height h?

4. Illustrate the operation of Max-Heapify(A, 3) on the array
   A = <27, 17, 3, 16, 13, 10, 1, 5, 7, 12, 4, 8, 9, 0>.

5. Build Heap is used to build a max(or min) binary heap from a given array. Build Heap is used in Heap Sort as a first step for sorting. What is the time complexity of Build Heap operation?

6. Illustrate the operation of Heapsort on the array
   A = <5, 13, 2, 25, 7, 17, 20, 8, 4>.

7. A priority queue can be implemented as a heap because
   a. The root can be easily be identified as the topmost priority.
   b. The heap is not always sorted so any value can be the top priority.
   c. The heap always has a left bottom node that can be the top priority.
   d. None of the above.