CSci 242: Algorithms and Data Structures **Spring, 2020**

Instructor: Dr. M. E. Kim Date: February 21st, 2019

Due: by the end of day, February 29th (Sat.), 2020.

**Home Assignment 3B: 40 points**

Q5. [30] **Maximum Heap**

In the array A[1..10] that stores the elements [35, 30, 25, 27, 22, 20, 18, 15, 10, 5],

1. ***Construct*** a ***max-heap*** in the array A. Draw the final heap and show its content in the array A. During the construction of heap, show each step of heap construction.
2. Draw the max-heap after ***removing the Maximum key*** from 1) and show its content in the array A.
3. From the max-heap in 2), ***sort t***he array A in the ***ascending*** order. Draw the heap and show the content of array A***after sorting five largest keys.***

Q6. [10] **Heap Sort**

A minimum heap is used to sort an array A of length *n* in descending order.

What is the running time of Heap-Sort algorithm on an array A that is already sorted in descending order? Explain your answer.