This assignment contains 1 pages (including this cover page) and 4 questions. Total of points is 100.

Conditions: All work must be completed individually. No outside resources are permitted. The only permitted resources are your texts and class notes.

Write your answers neatly and clearly on standard paper. Include your name and Net ID. Follow submission instructions as indicated on Canvas.

1. (30 points) Answers questions from Drozdek CH6.14: 10.

2. (25 points) Answers questions from Drozdek CH6.14: 20, 22

3. (25 points) Write pseudocode for heapsort. You can assume you have the following heap operations available: insert, heapify (or swapUp). What is the worst case Big-Theta time complexity (briefly justify)?

4. (20 points) Assume an initially empty AVL tree. Assume the following items are added sequentially in this order: 5, 9, 8, 10, 2, 4, 3, and 1.

   A. Illustrate the newly populated tree.

   B. Illustrate after removing 4.

   C. Illustrate after adding 6.