CSC 355. Discrete Structures and Basic Algorithms
Homework Assignment 5. Searching Algorithms

Instructions: Solve the following questions.

1. Create a pseudocode to find the largest three elements in the following array: *(5 points).*

4	8	1	9	0	2	3	7	6	3

2. Select the right option and explain your answer. *The average number of key comparisons done in a successful linear search in a list of length n is:* *(5 points).*
    a. log(n)
    b. (n-1)/2
    c. n/2
    d. (n+1)/2
3. Select the right option and explain your answer. *The time taken by binary search algorithm to search a key in a sorted array of n element is:* *(5 points).*
    a. O(log n)
    b. O(n)
    c. O(nlogn)
    d. $O(n^2)$
4. Select the right option and explain your answer. What are the advantages of Linear Search over Binary Search? *(5 points).*
    a. The array is ordered
    b. Less number of comparison
    c. Less time and space complexity
    d. Linear search can be used irrespective of whether the array is sorted or not
5. List three advantages and three disadvantages of Hashtables *(2.5 points).*
6. List three advantages and three disadvantages of Search Trees *(2.5 points).*

Submission Instructions

You must upload your homework in a **pdf** file in the designated area in D2L.

Grading Points

Total Score: 25 points