CS3353: Data Structures and Algorithm Analysis I
Fall 2022

Review Quiz #12 (Last One)

- Name only: _____
- Release date: Dec 05, 2022 (Monday)
- Total 5 pts

1. In graph, the term "*optimal*" can imply

[0.5 pts]

    (a) shortest   (b) cheapest   (c) fastest   (d) all of these

2. In the worst case, insertion sort has a [   ] running time.

[0.5 pts]

    (a) $O(n)$ (b) $O(\log n)$ (c) $O(n^2)$ (d) $O(n \log n)$

3. What is a perfect hash function?

[1 pt]

4. Given a hash table of 100 locations, calculate the hash value using folding method for key 3081752. Here, the key value is divided into two-digit numbers from the left most digit.

[1 pt]

5. Sort (increasing order from the left most element) the following elements using merge sort. Show all *divide*, *conquer*, and *combine* operations and their corresponding elements. Refer to the Figure in the Lecture_20_Sorting lecture slides.

[1 pt]

1, 8, 6, 4, 10, 5, 3, 2, 22

6. Sort (increasing order from the left most element) the following elements using shell sort. Show all *divide*, *sort subarray*, and *sort array operations* and their corresponding elements. Refer to the Figure in the Lecture_19_Sorting lecture slides.

[1 pt]

63, 19, 7, 90, 81, 36, 54, 45, 72, 27, 22, 9, 41, 59, 33