CSci 242. Algorithms and Data Structure
Instructor: Dr. M. E. Kim Date: October 31st (Thr.), 2019

A Study Guide: Exam 2

Date: Nov. 19th (Tue.) 9:00 – 10:45 AM, 2019.

Room: 364 HH

I. Topics:

- Chapters 6, 8, 9, 10. 11
- Handouts 6 – 7,
- HWs 4 – 7

II. Type of Questions:

- Definition and Description of the Data structure, Algorithm Design paradigm
- Shor Answer
- Algorithm Design for Problem Solving
- Recursive Algorithm Analysis in Recurrence Equation

III. Concept, Problem Solving and Analysis:

- Definition/Description of a data structure, its properties, the various terminology and the Algorithm Design Paradigm.
  e.g.) greedy method, divide and conquer, recurrence equation, weighted median, etc. etc.
- Sorting algorithms and their running time.
- Design of a short algorithm for a problem solving based on the algorithm design paradigm: e.g.) job scheduling algorithm based on greedy method.
- Design of a short algorithm for a problem solving in the given running time:
  e.g.) an inversion algorithm in O(n log n), etc.
- Construction of a Huffman Tree for encoding/decoding of the string.
- Representation of the Running Time of Recursive algorithm in Recurrence Equation.
- Solving a recurrence equation by iterative substitution, recursion tree or Master's theorem.

IV. Review all the materials: the **slides, HWs, handouts** and the previous **tests**.

Good Luck!