Exam Topics

1. Multi-Dimensional Arrays (2-D and 3-D)
   (a) 2-D: Row-major order vs column major order
   (b) 3-D: Dimension ordering
   (c) Dynamically allocated arrays in Java
   (d) Linearization of a multi-dimensional array
      i. Counting elements in linearized order.
      ii. Mapping from multi-dimensional index into a 1-D index
      iii. Reverse mapping from 1-D index to a multi-dimensional index

2. “Big O” notation.
   (a) definitions
   (b) concepts

3. Makefiles
   (a) Concepts: target, dependency, and actions
   (b) Ability to write a Makefile

4. Linked Lists and their variations (singly linked, doubly linked).
   (a) operations append, prepend, insert, search, delete

5. Stacks, queues. Circular array implementation of queues.


7. Hash Tables
   (a) hash functions, polynomial hash functions, collisions
   (b) chaining
   (c) open addressing
      i. probe sequence
      ii. clustering
      iii. double hashing