Study guide for CS163/CS164 Midterm 3

You should be able to interpret or write Java code that uses any of the items shown below:

1) ArrayLists
    a. Type Parameters (Generics)
    b. Store any type of object
    c. Basic methods – add, clear, indexOf, get, remove, set, size, toString, contains, equals
    d. Iterating through a list
    e. Modifying while looping
    f. Storing primitives in wrapper classes

2) File Input/Output
    a. File objects
    b. File Basic methods – canRead, delete, exists, length
    c. Scanner for file input
    d. Scanner basic methods – next, nextLine, nextInt, nextDouble, hasNext, hasNextLine, hasNextInt, hasNextDouble
    e. Difference between relative and absolute path names
    f. PrintWriter for file output

3) Exceptions
    a. Checked vs. unchecked
    b. Catching an exception
    c. Throwing an exception
    d. finally clause

4) Interfaces
    a. Only contains *abstract* methods
    b. Cannot contain *concrete* methods
    c. **implements** keyword
    d. Methods only, no class or instance data
    e. Constants sometimes included
    f. Enumerations often included
    g. Pure functionality (no implementation)
    h. Arrays defined as interface type can store any class that implements
    i. Comparable

5) Recursion
    a. Basic definition of recursion
    b. Calling a method from itself
    c. Stack model for recursion
    d. Helper methods
    e. Memoization
    f. Hanoi, Spock, PentagonPark
    g. Tail recursion