

Topics for Exam 2

1. Programming Concepts

- (a) Program Logic
 - i. insert and search of a list (using an array)
 - ii. organizing your program into classes
- (b) Deep copy v.s. shallow copy
- (c) Recursion

2. Java concepts

- (a) Java References
 - i. arrays and objects
 - ii. the reference named “**this**”
- (b) Java References
- (c) Objects
- (d) Methods
 - i. static v.s. non-static methods
 - A. calling static methods
 - B. calling non-static methods
 - ii. input parameters
 - iii. return types
 - iv. overloading and signature of a method
 - v. static v.s. non-static context
 - vi. public v.s. private methods
 - vii. constructors
- (e) Data and Scope
 - i. data declared as **final**
 - ii. local variables
 - iii. object data members
 - iv. use of keyword “**new**”
 - v. shadowing
 - vi. when to use: data members, parameters, local variables
 - vii. type casting
- (f) Input and Output
 - i. scanners
 - ii. files
 - iii. Java Exceptions

- (g) Strings and string class methods
 - i. `charAt()` method
 - ii. `equals()` method
 - iii. `length()` method
 - iv. `toLowerCase()` and `toUpperCase()` methods
 - v. `compareTo()` method
- (h) Converting a string of numerals to an integer
 - i. `parseInt()` method