CSE 341:
Programming Languages

Spring 2006

Lecture 30 — Final Review

Exam: Thursday June 8, 8:30-10:20 AM

General

Comprehensive — Re-review Midterm topics list

But some emphasis on topics since midterm & unifying concepts

Review homework solutions, too

Closed book, closed notes

Similar format to midterm: T/F, short answer, compare/contrast, read & evaluate code, write code

Scheme

- Basics: syntax, evaluation, special forms (define, lambda, conditionals, let), variable length argument lists (varargs)

- Binding forms (define, parameters, let and its variations)

- Parameter passing mechanisms: call-by-value, call-by-name, call-by-need (lazy evaluation)

- Use of closures to realize thunks, streams, and memoization

- Basic idea of continuations; continuations as exceptions

- Scheme implementation: environments, eval/apply, using closures to implement higher-order functions

- Functions vs macros

Smalltalk/Squeak

- Basics: concepts and vocabulary including syntax, messages, classes and methods, blocks (closures), `self` and `super`

- Smalltalk name resolution, dynamic dispatch (meaning and basic implementation ideas), late binding

- Classes as objects in Smalltalk — difference from other languages, e.g., Java

Overall

- Recursion & iteration

- First class functions; closures

- Higher-order functions & functional programming (map, fold, etc.)

- Type system design and tradeoffs; static vs. dynamic typing

- Side-effects; evaluation order

- Garbage collection

Course Evals

Please include "Additional Items" on back side of mark-sense form.

Yellow sheets come to me (after grades are turned in). Comments on all aspects of course are welcome—books, lectures, TAs, homework, etc.

General Glowing Praise for your instructor is always especially welcome…

Good luck on the Final!