

CSCI 330 – Midterm Exam #2 Review

General Notes for Midterm Examination:

- **No** multiple-choice or fill-in-the-blank
- Short answer and coding questions
- Partial credit awarded
- Five pages (note: some problems will have lots of room)
- Problems similar to homework / lab with additional definitions

Material

Chapter 4

- Lexical Analysis (definition, purpose, data representation/transformation)
- Parsing (goal of, implementation via recursive descent, why use BNF?)
- Implementing a recursive descent parser (OCaml or C code)

Chapter 5

- Names – design issues (form, case sensitivity, keywords vs reserved words)
- Variables – name, address, type, value, lifetime, scope
- Type binding – static vs dynamic, type inference
- Storage binding – static, stack-dynamic, explicit heap dynamic, implicit heap dynamic
- Scope – static vs dynamic, referencing environment
- Scope vs lifetime

Chapter 6

- What is a descriptor?
- Primitive data types, Strings, Enumerations
- Arrays
 - Subscripting (types, binding)
 - Operations, Slices, Descriptors
 - Associative Arrays
 - Layout (logical and memory)
- Records: design, operations, references, layout (logical and memory)
- Tuples: design, operations, references, layout (logical and memory)
- Unions/Variants: design, free vs. discriminated, layout (logical and memory)
- Pointers: design issues, operations, problems, pointer arithmetic
- Type Checking: strong vs. weak; named type and structure type equivalence

OCaml

- Tuples
- Anonymous functions
- Everything on Lab 3 is fair game

Be sure to look at and think about the questions at the end of the chapters.

Look at the “review questions” and the “problem sets”