Compiler Construction Past Paper

General Concepts

- y2018p4q3
    - lexical analysis and parsing
    - ambiguous grammar
    - closure in functional programming
    - Static Links
    - Opt

Lexical and Syntax analysis

Grammar ambiguity, Operator associativity / precedence.

- y2004p4q1 (a-e)

Lexical analysis based on regex and FSA, Parsing based on CFG and PDA.

Recursive Descent

- y2004p4q1 (a-e)

LL(k)

LR(k), SLR(k)

- y2015p3q3
- y2020p4q4
- y2021p4q4
- y2002p4q2
    - LEX / YACCtools

Compiler Correctness

- y2005p5q6

CPS

- y2017p23q4

Run-time Memory

- y2000p3q3
    - allocation and recovery of heap records, union type
    - arrays with non-manifest bounds, labels and GOTO commands

Stack

- y2014p3q4
- y2018p4q4

JARGON VM

- y2019p4q3

Garbage Collection

- Reference Counting
- Tracing Collection
    - Mark and Sweep
    - Copy Collection
    - Generational Collection

Example

- y2006p5q6 (b)
    - Tracing Collection def

Linking

- y2001p6q6

Exception

- y2019p4q4
    - front-end, type safety
    - Optimise
    - stack-oriented code

Bootstrapping