Review for the Final

December 7, 2006

– Typeset by $\mbox{Foil}{\rm T}_{\!E}\!{\rm X}$ –

- Number Systems
- Number Base Conversion
- BCD Addition
- Binary Arithmetic (Add, Mult, etc.)
- Boolean Algebra
- Gates and XOR
- Canonical Expressions

- K-Maps
- Integrated Ciruits (P-Type, N-type, etc.)
- Design Heirarchy and Analysis
- Decoders, Encoders, ROMs and RAMs
- MUX and De-Multiplexers, FPGAs, PLAs
- Addition/Subtraction (Signed Magnitued, 1's and 2's complement)
- Carry Look-Ahead Adder

- Sequential Circuits
- Latches (S-R, Gated, etc.)
- Flip-Flops (D,J-K,T, etc.)
- Sequential Circuit Design
- Next State Tables
- State Graphs
- State encodings (Fully encoded, one-hot, ...)

- Registers and Counters
- Mealy vs. Moore State Machines
- Shift Registers
- Modulo and Cascading Counters
- Metastability
- Complete and conflict free statgraphs

- Register File
- LC-3 Overview and Instructions
- LC-3 Datapath
- LC-3 Control
- Memory, RAMs
- Asynchronous Inputs

- Pipelining
- Register Transfer Logic
- Machine Sequencing and Control
- Multipliers, Debounce and UART

Final Exam

- Eight Problems
- 3 from Exam 1
- 2 from Exam 2
- 3 from Last Few lectures
- 3 hours 1 single 8.5×11in page of notes (not two sides.)