

Final Exam Review

- The final exam is comprehensive. It covers the materials of the whole semester
- **Combinational Logic**
 - Logic simplification, proof
 - » axioms and laws,
 - » duality, DeMorgan's Law
 - Canonical forms (minterm and maxterm)
 - K map (up to 4 variables)
 - Implementation using NAND gates (or NOR gates)
 - Multiplexers and decoders
 - Open collector and tri-state gate

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Final Exam Review

- **Sequential Logic**
 - Different type of flipflops
 - Timing issues
 - Counters and shift registers
 - » Binary counter, Ring counter, Johnson counter
 - » Self-starting counter
 - Analysis of Finite State Machines
 - » Moore or Mealy
 - » Write the excitation equations of the FFs.
 - » State transition diagrams
 - Design of Finite State Machine
 - » Start from word description
 - » State reduction (row matching)
 - » State encoding (binary, one-hot, heuristics)
 - » Excitation equation for D and J K FFs.
- **Memory (RAM and ROM)**
 - SRAM vs. DRAM
- **Programmable logic (PLA, PAL, CPLD, FPGA)**

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Final Exam Review - Exam Format

- **All material covered in class and topics from laboratory exercises**
- **Closed book**
- **Two Page Handwritten Notes (8.5x11 inches, single sided, original – not photocopied)**
- **Short and Long Problems, and True/False, similar to the Exam 1 and 2.**
- **Final Time:**
 - May 1st, Tuesday, 10:00am-11:50am.
- **Study Suggestions**
 - review in-class notes – they are the authoritative reference for all material covered in this class
 - review the old exams (exam 1 and 2)
 - skim the text material we covered in Katz
 - attend the review session with the TAs at 6pm next Wed.