

Exam 1: Review of Material Covered

- Types of gates, symbols, truth tables
- Relations between various representations and conversions from one to another
- Boolean Algebra Axioms / Laws
 - concentrate on the earlier ones
- DeMorgan's Law
- Duality
- Canonical Forms
 - sum of products
 - product of sums
 - minterm / maxterm notation
 - relations between forms
- Don't Cares
- Simplification (two level)
 - algebraic (uniting theorem)
 $A(B+B')=A$
 - Karnaugh map method
 - » minterm
 - » maxterm
 - » complement
 - » terminology

Exam 1: Review of Material Covered

- Multi-Level Logic
- Conversion of AND/OR and OR/AND to NAND and NOR networks
- Time Response
 - Concept of propagation delay and real behavior of devices
- Multiplexers
- Decoders
- Memory
- Programmable Logic Devices

Exam 1: Review - Types of Problems

- Boolean Algebra
 - simplify a given expression using the laws/axioms
 - compute the complement or the dual of an expression
 - determine if two expressions are equivalent
 - convert between POS and SOP forms (DeMorgan's Law or other algebraic technique)
- Convert an expression to a schematic or vice-versa using standard logic symbols (AND, OR, NOT, XOR, NAND, NOR)
- Canonical Forms
 - product of sums
 - sum of products
 - truth table \leftrightarrow expression
 - minterms and maxterms
 - complementary expression as minterms or maxterms
 - Min/maxterms \leftrightarrow expression
- Don't Cares
 - work with incompletely specified Boolean functions

Exam 1: Review - Types of Problems

- Simplification
 - understand the concept of "adjacency" or "distance"
 - K-Maps
 - » Expression \leftrightarrow K-Map
 - » Truth table \leftrightarrow K-Map
 - » Minterms \leftrightarrow K-Map
 - » Maxterms \leftrightarrow K-Map
 - » don't cares
 - » sum of products form
 - » product of sums form
 - » complementary solution
 - Use K-map to find F or F' in either SOP or POS form
 - » up to four variables
- Design With NAND and NOR Gates
- Conversions
 - from AND-OR or OR-AND to NAND-NAND or NOR-NOR by substituting "DeMorgan symbols"
- Design with Mux's and Decoders
- ROM Concepts
- PLD Concepts

Exam 1: Review - Exam Format

- all material covered in class, including topics from laboratory exercises
- Closed Book, Closed Notes
- One Page Handwritten Notes (8.5x11 inches, single sided, original – not photocopied)
- Short and Long Problems, and True/False
- 50 minutes
- Study Suggestions
 - review in-class notes – they are the authoritative reference for all material covered in this class
 - skim the text material we covered in Katz
 - » review the terminology and notation
 - review quiz problems
 - » rework problems on your own
 - attend the review session with the TAs