

Digital Systems Midterm Review

20% True or False (From Chapter 1 to Chapter 6)

Chapter 2 (10%)

- Number systems (binary, octal, hex)
- BCD codes
- Parity method for error detection

Chapter 3 (10%)

- Basic logic gates (AND, OR, NOT, NOR, NAND)
- Truth table
- Timing diagram
- Boolean theorems, DeMorgan's theorems
- Universality of NAND gates and NOR gates

Chapter 4 (25%)

- Simplifying logic circuits (algebraic simplification, Karnaugh map)
- Designing combinational logic circuits (using truth table, by inspection)
- XOR, XNOR gates
- Basic characteristics of digital ICs

Chapter 5 (25%)

- NAND, NOR latches
- Clocked S-C flip-flop (internal circuitry), J-K, D flip-flop
- D latch
- Applications of flip-flop

Chapter 6 (10%)

- Representing signed numbers
- Addition, subtraction
- BCD addition
- Full adder design