CpE213 Exam 1 Topics

Digital logic review and address decoding
Number systems
        Binary
        Hexadecimal
Basic logic gates
Memory elements
        DQ flip-flop
        Register
        Bus
        Decoder
        Mux
        ALU
        ROM and RAM
        Memory characteristics
Address decoding
        Decoder method (74LS138 decoder)
Microprocessor vs. Microcontroller
        3 main differences
Review HW1

WIMP51
WIMP51 programmer's model
Control Unit (CU)
        3 cycle state machine
        Fetch cycle
        Decode cycle
        Execute cycle
WIMP51 instruction set
WIMP51 timing
WIMP51 assembly programming
        Assembly program -> machine code program
        Machine code program -> Assembly program
Review HW2

Ch2.8051 Hardware
8051 family characteristics
8051 pins
I/O port structure
        For input
        For output
Memory organization
        Code memory
        Data memory
        Internal memory

External memory
Internal RAM (00H – FFH) structure
      Direct/Indirect addressing
      Bit addressable RAM space
      Register banks
      Special function registers (80H – FFH)
            DPTR
            PSW
Accessing external code memory
Accessing external data memory
Review HW3