Midterm Review

I.   Introduction
II. Unix Basics
    A. Unix Directories
       1. pwd, ls, mkdir, cd, cp, mv
       2. user/group/world
       3. read/write/execute
       4. rm, ps, kill
III. Introduction to C
    A. C input/output
       1. printf, scanf
    B. Type declarations
       1. sizeof
       2. address of a variable
    C. preprocessor directives
       1. #include
       2. #define
    D. C constructs
       1. if, while, for, switch, conditional
       2. promotion, casting, operator precedence
IV. Functions
    A. A Simple Function Example
       1. function prototypes
    B. Math Library Functions
    C. Header Files
    D. Random Number Generation Example
    E. Call by Value
    F. Call by Reference
    G. Scope
       1. Global variables
       2. Local variables
       3. auto versus static variables
V. Arrays
    A. Initialization
    B. Array Example
    C. Subscripting Out-of-Range Example
    D. Passing Arrays to Functions
    E. Multiple Dimensional Arrays
       1. Double-Subscripted Arrays
       2. enum and switch Example
III. Pointers
    A. Addresses and typed (& *)
    B. Indirection
    C. Using pointers in call-by-reference Example

  D. Swap with Pointers Example
  E. Pointers and Arrays
  F. Operator Precedence with Pointers Example
IV. Strings
  A. Strings as arrays of characters ending with "\0"
  B. Pointers to Strings
  C. An Array of Strings Example
V. Make   {not covered in class}
  A. A make Example
VI. Structures
  A. Definitions and typedef
  B. Structure member operator (.)
  C. Structure pointer operator (->)
  D. Structures with Functions
  E. A Structure Example
VII. Command Line Arguments
  A. argc and argv, atoi function
VIII. Introduction to Data Structures
  A. Self-Referential Structures
  B. malloc and free
  C. Linked Lists
    1. Insertion Example
    2. Linked List Example
IX. Computer System Performance and Simulation
  A. Performance Metrics
    1. Utilization, throughput, response time and delay
  B. System queue model versus queue data structure
  C. Event lists and script driven simulations
X. Data Structures
  A. Queues
    1. Examples of queues in systems and networks
    2. Enqueue and dequeue
    3. Head and tail of queue data structure