Final Exam Review

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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
- B. Queues
  - 1. enqueue operation
  - 2. dequeue operation
- C. Trees
  - 1. Terminology (root, leaf, child node)
  - 2. Binary Trees
  - 3. Inorder, preorder and postorder traversals
- D. Stacks
  - 1. Push
  - 2. Pop
- E. Hashing
  - 1. Two examples of using hashing
  - 2. Hash functions
  - 3. Linear probing
  - 4. Chaining

XI. Introduction to C++
- A. Syntax difference with C
  - 1. Classes
  - 2. Stream insertion and extraction operators
  - 3. Header files
  - 4. Inline functions
  - 5. bool type
  - 6. references (aliases)
    - a. returning from function (static only)
  - 7. default arguments
  - 8. unary scope resolution operator
- B. Overloaded Functions
- C. Function Templates

XII. Classes and Objects
- A. Class Definitions and Objects
  - 1. access-specifiers: public, private, protected
- B. Member functions
  - 1. Gradebook Example
    - a.   string type, getline function
- C. Data members
  - 1. Get and Set functions
    - a. accessing private data members

       2. delete operator

  F. Static class members and static member functions

XV. Operator Overloading

  A. Fundamentals of Operator Overloading

       1. keyword operator

       2. three operator exceptions (= & ,)

  B. Restrictions on Operator Overloading

       1. precedence

       2. associativity

       3. number of operand

  C. Operator Functions as Class Members vs. Global Functions

  D. Overloading Stream Insertion and Stream Extraction Operators

  E. Overloading Unary Operators

  F. Overloading Binary Operators

  G. Array Overloading Example

XVI. Inheritance

  A. Introduction – definitions

       1. public, private and protected

  B. Base Classes and Derived Classes

  C. Five Examples of Base Class and Derived Class Relationships

       3. inheritance hierarchy with private members

       4. inheritance hierarchy with public members

       5. inheritance hierarchy with private members accessed through public member
          functions

  D. Constructors and Destructors in Derived Classes

       1. components not inherited

       2. chain of constructor calls

       3. constructor/destructor in derived classes Example

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