No.: _____   Name: _____

Computer Science
Homework for Chapter 8   **Due: 2010/05/19**

_____1. Which of the following is a FIFO structure?

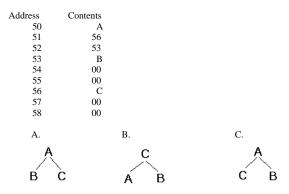   A. Array   B. Stack   C. Queue   D. Tree

_____2. Which of the following is not a means of locating an entry in a linked storage structure?

   A. Head pointer   B. Child pointer   C. Root pointer   D. NIL pointer

_____3. If the number of nodes in a PARTIALLY FILLED binary tree is 2^n (where n is a positive integer), then the ENTIRE tree would contain at least

   A. 2^{n+1} nodes   B. 2^{2n} nodes   C. $2^{n+1} - 1$ nodes   D. 2^{n+2} nodes

_____4. The table below represents a portion of a computer's main memory containing a binary tree. Each node consists of three cells, the first being data, the second being a pointer to the node's left child, and the third being a pointer to the node's right child. If the nil pointer is represented by 00 and the tree's root pointer contains 50, which of the following is a picture of the tree?

Address	Contents
50	A
51	56
52	53
53	B
54	00
55	00
56	C
57	00
58	00

   A.   B.   C.

_____5. In a machine language, the technique in which an instruction contains the location of a pointer to the data to be manipulated is called

   A. Immediate addressing   B. Direct addressing   C. Indirect addressing

_____6. In a machine language, the technique in which an instruction contains the DATA to be manipulated is called

   A. Immediate addressing   B. Direct addressing   C. Indirect addressing

7. In the following table, connect the term to each phrase that gives the best description of the term.   (40%)

Term		Descriptive Phrase
abstraction	____	**A.** Contains the address at which an entity is stored
abstract data type	____	**B.** Used to find entries in a homogeneous array
Root	____	**C.** The separation of internal implementation from external functionality
linked structure	____	**D.** A general sequential storage structure
instance	____	**E.** A LIFO storage structure
stack	____	**F.** A FIFO storage structure
top	____	**G.** A "rectangular" storage structure that does not change in size or shape
user-defined data type	____	**H.** A storage structure that may contain siblings.
tree	____	**I.** A storage structure template built by combining primitive types
list	____	**J.** A custom-built data type including both data and operations
queue	____	**K.** A "type" whose instances are objects
class	____	**L.** An entity conforming to a type
pointer	____	**M.** A data storage system in which items are connected via pointers
NIL pointer	____	**N.** The "head" of a stack
address polynomial	____	**O.** The top node of a tree
array	____	**P.** Indicates the end