Roll No. .....

Subject Code—8048

P.G.D.C.A./M.C.A. EXAMINATION

(MCA 3 Years)

(Main/Re-appear Batch 2009 Onwards)

(Second Semester)

MS-06

DATA STRUCTURE AND ALGORITHMS

Time : 3 *Hours* *Maximum Marks* : 70

Section A

Note : Attempt any *Seven* questions. 7×5=35

1. What is Stack ? Write algorithms for stack operations.

2. What is Multilinked List ? Explain with the help of a schematic diagram.

3. What is AVL tree ? Explain its need.

4. Compare the efficiency of data structures implemented with linear list and linked list.

5. Differentiate among queue, dequeue and priority queue.

6. Write algorithm for insertion sort.

7. Explain Binary Tree, a Strictly Binary Tree and a Complete Binary Tree.

8. How is a graph represented using a linked representation ? Explain.

9. What do you mean by dynamic storage allocation and deallocation ? Explain with suitable examples.

10. What is hash function ? Explain folding method.

Section B

Note : Attempt all the questions.

11. What is Binary Search Tree (BST) ? Write algorithm to insert and delete values from BST. Also, compute the time complexity of BST. **12**

Or

What is Doubly Linked List ? Write algorithm for insertion, deletion and traversal operations.

12. What are different ways to traverse a tree ? Write their algorithms. 12

Or

(a) What is Threaded Binary Tree ? Explain the memory representation of threaded binary tree.

(b) What are applications of graph ? Discuss.

13. Write algorithm for merge sort and compute its time complexity. 11

Or

What is External Sorting ? Explain any *one* algorithm for external sorting.