**Sreenidhi Institute of Science & Technology**

A12

**(An Autonomous Institution**)

**Code No:**

**MCA I - YEAR II - SEM, February, 2015 (Supplementary)**

**DATA STRUCTURES AND ALGORITHMS**

**Time: 3 Hours Max. Marks: 60**

**Note: No additional answer sheets will be provided.**

**Part – A**

**Max. Marks: 10**

**Answer all the QUESTIONS**

1. What is an algorithm? What are the characteristics of algorithm?

2. What are the applications of Stacks And Queues

3. List the different types of special matrices.

4. Explain B-trees.

5. Mention the different Algorithm Design methods.

6. Define Trie.

7. Define a graph.

8. What are the operations in b-trees?

9. What is spanning tree of a graph?

10. List three properties of AVL trees

**Part – B**

**Max. Marks: 50**

**ANSWER ANY FIVE. ALL QUESTIONS CARRY EQUAL MARKS.**

1. Define O(Big Oh), ?(Omega), ?(Theta) asymptotic notations. Compute their values for the operations of insert, delete and search on an ordered linked list

2. Explain with an example and write algorithm for stack ADT operations.

3. Explain with an example and write algorithm for DFS algorithms.

4. Briefly explain about Binary Search Tree operations with pseudo code.

5. Explain with an example and write algorithm for Kruskal’s Algorithm for Minimum cost Spanning tree.

6. Explain with an example and write algorithm for the KMP algorithm.

7. Explain about 0/1 Knapsack problem with examples.

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