

Code: CSCS1T1

PVP 12

I M.Tech-I Semester-Regular Examinations-March 2014

**DATA STRUCTURES AND ALGORITHMS
(COMPUTER SCIENCE & ENGINEERING)**

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

- 1 a) Define `Abstract Data Type? How are they used in program development? 7 M
- b) Explain the operations of Stack using Linked List 7 M
- 2 a) What is the difference between Binary Search and Interpolation Search? 7 M
- b) Write the best, worst and average case time complexity estimates of Quick Sort Algorithm. 7 M
- 3 a) Explain BFS and DFS algorithms 7 M
- b) What is Graph? Explain traversal techniques with an example 7 M
- 4 a) What is meant by rehashing and explain in brief. 2 M
- b) Briefly explain the three common collision resolution strategies in open addressing hashing. 6 M

- c) Explain Various hashing methods with example 6 M
- 5 a) What is a Queue ? Explain the applications of Circular queues and D-Queue 7 M
- b) Write the best, worst and average case time complexity estimates of Quick Sort Algorithm. 7 M
- 6 a) Discuss different ways of representing a binary tree and suggest an application for each of the representations. 7 M
- b) Explain how the threads are used to simplify the traversal of a binary tree. 7 M
- 7 a) What is an AVL Tree.? Explain its operations 6 M
- b) Construct an AVL Treewith
15, 18, 21, 6, 4, 3, 17, 28, 25, 95,74,60 4 M
- c) Explain the procedure to search the node 28 in above constructed AVL Tree. 4 M
- 8 a) Explain the operations which are done in B-Tree with examples. 7 M
- b) What is heap order property? Explain the operations which can be done in heap with examples. 7 M