

Subject Code: C5801

M.Tech - I Semester [R09] Regular/Supplementary Examinations, April - 2012

DATA STRUCTURES and ALGORITHM ANALYSIS
(Common to CSE, CS and NN)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions. All questions carry EQUAL marks.

1. a. Define the asymptotic notations used for best case average case and worst case analysis of algorithms.
b. Write an algorithm for insertion, deletion of elements in Doubly Linked List; Perform best, worst and average case complexity with appropriate order notations.
2. a. Write an algorithm for Searching an element in Binary search tree, perform best, worst and average case complexity with appropriate order notations.
b. Explain in detail merge sort. Illustrate the algorithm with a numeric example. Provide complete analysis of the same
3. a. Illustrate the algorithm for Infix to postfix conversion with a numeric example.
b. Compare and contrast Breadth First and Depth First Graph Traversal Techniques in detail.
4. Define Hash function? Discuss about various Collision resolution techniques in detail?
5. Define Priority Queues? Explain how priority queues are used in building of heap?
6. Explain Insertion and deletion of an element in binary search tree with the help of an algorithm.
7. Explain various rotations used in AVL trees to balance the height of a binary tree.
8. a. Define Red-Black Tree? Discuss how insertion and deletion is performed in these trees?
b. Compare and contrast between Red-Black trees, Splay Trees and B-Trees?

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