CS/IT - 305

B.E. III Semester

Examination, December 2012

Data Structure

Time : Three Hours

Maximum Marks : 70/100

Note : 1. Attempt all questions.
2. All questions carry equal marks.

Unit - I

1. a) Explain recursion. Write any one program in C++/C using recursion.

   b) Explain Garbage collection.

OR

2. a) Explain Algorithm Complexity Notaitons with suitable example.

   b) How one dimensional and two dimensional arrays are stored in memory? Write accessing function for two dimensional array.

Unit - II

3. a) How a linked list can be implemented using arrays.

   b) Explain and write an algorithm to insert a node into a linked list (taking all case).

OR

4. Design and implement algorithms that maintain a queue which can be subjected to insertion and deletion.

Unit - III

5. a) Prove that a binary tree with k internal nodes have (k + 1) external nodes.

   b) Explain the linked representation of binary tree.

OR

6. a) Explain AVL tree with suitable example.

   b) Following nodes are inserted into empty tree in order 5, 16, 20, 40, 5, 10, 18, 30, 40, 12, 1 castruct (i) binary search tree (ii) AVL tree.

Unit - IV

7. Explain insertion, Bubble sort with suitable example and also write its complexity in best, average, worst case.

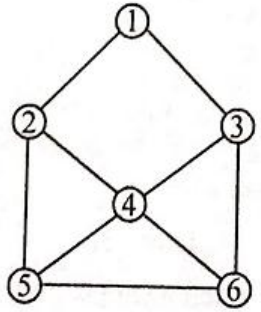
OR

8. Explain Hash Function and symbol table in detail.

Unit - V

9. a) Explain Minimum Cost spanning tree.

   b) Apply BFS and DFS into a graph.



OR

10. a) Explain various graph traversal techniques.

    b) Describe three way to implement graph in computer memory.

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