PVP 12

Code: CS3T3, IT3T3

II B.Tech - I Semester – Regular Examinations - January 2014

DATA STRUCTURES
(Common for CSE, IT)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) Define different asymptotic notations. 8 M

   b) What are the general rules for running time calculations? 6 M

2. a) With a detailed description of algorithm convert the following infix expression into postfix expression. (p+q)*(r-s)/(t+u). 10 M

   b) Explain Circular queue . 4 M

3. Explain clearly about a singly linked list and Write the algorithms for the following with reference to a singly linked list 2 M

   a) To create a singly linked list 4 M

   b) To insert a node at a given position. 4 M

   c) To delete a node from a given position 4 M

4. Given two sparse matrices of m rows and n cols write routines to convert them into sparse representation and to perform addition. 14 M

5. a) Given the Inorder and Preorder traversals construct a Binary Tree: 8 M

Inorder: D B H E I A F C G
Preorder: A B D E H I C F G

b) Define

i) Complete binary tree
ii) Depth of a Binary tree
iii) Height of a binary tree 6 M

6. a) Construct an AVL tree with the given numbers: 50, 25, 10, 5, 7, 3, 30, 20, 8, 15. 8 M

b) Explain Single Rotation of AVL tree with Algorithm. 6 M

7. Explain different tree traversal methods of a graph with algorithms by taking an example. 14 M

8. Explain the algorithm for merge sort by taking the following example 14 M

85, 24,63,45,17,31,96,15