PVP 12

Code: CS3T3, IT3T3

II B.Tech - I Semester – Regular Examinations – December 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 O, Ω, θ notations of time complexity. 7 M

   b) What is recursion? Write a recursive function for finding factorial. 7 M

2 a) Define stack. How are insert and delete operations carried out in a stack? Explain with examples. 7 M

   b) Write a C program to convert infix expression to postfix expression. 7 M

3 a) What is a single linked list. Explain the various operations performed on single linked list with examples. 7 M

   b) What are the advantages and disadvantages of doubly linked lists over single linked list? 7 M

4 a) Define queue and how to implement queue using linked list? Explain. 7 M

   b) Explain the concept of sparse matrix representation. 7 M

5 a) What is binary tree? Explain the concept of binary tree traversals. 7 M

b) What is tree? Explain the various representations of tree. 7 M

6 a) What is Binary search tree (BST)? Write a 'c' program to implement insertion, deletion operations on a BST. 7 M

b) Explain the concept of AVL trees. 7 M

7 a) Define spanning tree. Write the algorithm for BFS. 7 M

b) Define graph. Explain the various graph representations. 7 M

8 a) Write a 'c' program to implement Merge sort. 7 M

b) Explain the concept of radix sort. 7 M