

B. Tech Degree IV Semester Examination, May 2006

IT/CS 405 DATA STRUCTURES & ALGORITHMS (1999 Admissions onwards)

Time : 3 Hours

Maximum Marks : 100

- I. (a) Develop an algorithm to perform binary search on an array of N-numbers. (10)
(b) What are multi dimensional arrays? Give an algorithm for matrix multiplication. (10)
OR
- II. (a) Implement a linked list with the following operations :
(i) Count the number of nodes in the list.
(ii) Add a node with a given value to the front of the list.
(iii) Delete a node with a given value from the front of the list. (8)
(b) Discuss on doubly linked list. (12)
- III. (a) Write a program to perform string reversal using stack. (10)
(b) Transform the following infix expressions to postfix expressions :
(i) $A - B / (C * D + E)$
(ii) $(A - B / C) * (X * Y + Z)$
(iii) $(A + B) * (C - D) - E * F$
(iv) $(A + B) * (C / B - E) + F - G$. (10)
OR
- IV. (a) Define priority queues. (5)
(b) Distinguish between Queue and Dequeue. (15)
- V. Explain how various traversals can be done on trees. (20)
OR
- VI. (a) Distinguish between complete binary tree and full binary tree. (10)
(b) What is a binary tree? Explain the representation of a binary tree. (10)
- VII. (a) Write a JAVA code to implement minimum spanning tree. (10)
(b) Explain various graph representation methods. (10)
OR
- VIII. Explain graph traversal methods. (20)
- IX. Distinguish between bubble sort and selection sort. (20)
OR
- X. Explain Quick sort method with an example. (20)

