

**II B.Tech II Semester Supplementary Examinations,
November/December 2005
DATA STRUCTURES THROUGH C
(Civil Engineering)**

Time: 3 hours**Max Marks: 80**

**Answer any FIVE Questions
All Questions carry equal marks**

1. Write a C program to find the inverse of a given 3x3 matrix. [16]
2. (a) Define a doubly linked list. Write an algorithm to insert and delete a node in a doubly linked list.
(b) List the applications of doubly linked lists. [12+4]
3. (a) Write a C Program to convert a prefix string to infix string
(b) Transform the following prefix expressions to postfix, using the above approach
++ A - *\$BCA/ + EF * GHI [8+8]
4. (a) Write and explain algorithms to insert and delete an element to and from a circular queue respectively.
(b) Given the circular queue with front (F)=6 and Rear(R)=2, give the values of R and F after each operation in the sequence: insert, delete delete insert. [10+6]
5. (a) Define Binary tree. Explain basic operations on Binary tree.
(b) Write C program for inorder and postorder traversal of a Binary tree. [6+10]
6. (a) Draw a sketch of one example directed graph and show its adjacency matrix.
(b) Draw a graph, show its adjacency list for graph and storage representation of adjacency list. [6+10]
7. Write an iterative function for binary search method and trace it. Give a suitable example. [16]
8. Write a C program to perform selection sort and arrange the same in the stack. [16]
