$\boxed{\textbf{RR}}$

II B.Tech I Semester(RR) Supplementary Examinations, May/June 2010
DATA STRUCTURES THROUGH C
(Mechanical Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Write a C program to Check whether a given substring is present in a string or not.

    [6+10]

2. (a) Formulate deletion algorithm for a circular linked list with a head node

    (b) Formulate an algorithm to concatenate two circular lists.   [16]

3. (a) Derive a method to convert a postfix expression into its prefix form

    (b) Consider the following arithmetic expression in postfix notation: 7 5 2 + * 4 1 5 - /-

        i. Find the equivalent prefix form of the above .

        ii. Obtain the computed value of the expression from its postfix notation

    [8+4+4]

4. (a) Mention and explain various types of queues and give an example for each

    (b) Compare various types of queues.   [8+8]

5. Write a C program for creating, inserting and deletion in a Binary tree.   [16]

6. (a) What are the advantages of adjacency matrix representation of graphs.

    (b) Define spanning tree of an undirected graph.   [8+8]

7. (a) Distinguish between linear and binary search methods.

    (b) Write an algorithm for non-recursive binary search method.   [8+8]

8. (a) Write an algorithm for selection sort

    (b) Sort the following numbers using selection sort and give the required steps.
        96,31,27,42,34,76,61,10,4   [8+8]

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