RR

B.Tech I Year (RR) Supplementary Examinations, December 2010
C & DATA STRUCTURES
(Common to Civil Engineering, Electrical & Electronics Engineering, Electronics &
Communication Engineering, Computer Science & Engineering, Electronics &
Instrumentation Engineering, Biomedical Engineering, Information Technology, Electronics
& Control Engineering, Electronics & Computer Engineering, Computer Science & Systems
Engineering, Instrumentation & Control Engineering, Biotechnology)

Time: 3 hours   Max Marks: 80
Answer any FIVE questions
All questions carry equal marks
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1. (a) Describe in detail the execution of while statement with example.
   (b) Given a number, write a program using while loop to reverse the digits of the number. For e.g. 12345 should be written as 54321.
   (c) Write a program to compute the sum of the digits of a given integer number.

2. (a) What do you mean by functions? Give the structure of the functions and explain about the arguments and their return values.
   (b) Write a C program that uses a function to sort an array of integers.

3. (a) What is structure within structure? Give an example for it.
   (b) Write a C program to illustrate the concept of structure within structure.

4. (a) Write a 'C' program to find factorial of a given number using pointers.
   (b) Write a 'C' program to arrange the given names in alphabetical order using pointers.

5. What is Dequeue? Explain the various operations on Dequeue with suitable algorithms.

6. Write a program to insert an element at n^{th} position and delete an element at n^{th} position in a doubly linked list.

7. Explain non-recursive and recursive algorithm for **preorder traversal** of binary tree.

8. By hand, trace through the steps of **selection sort** for the following lists.

   (a) The following seven numbers to be sorted into increasing order:

   12   20   34   27   30   36   23

   (b) The following list of 14 names to be sorted into alphabetical order.
   Tim Dom Eva Roy Tom Kim Guy Amy Jon Ann Jim Kay Ron Jan

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