24032

B. Tech. 3rd Sem. Electronics & Communication Engg (Branch-III) Examination – December, 2013

DATA STRUCTURE USING 'C'

'F' Scheme

Paper : CSE-201-F

Time : Three hours]   [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complain in this regard, will be entertained after examination.

Note : Attempt *five* questions with at least *one* question from each section. *Question No. 1 is compulsory.* All questions carry equal marks.

1. Explain the following briefly: 5 × 4

   (a) Big-Oh Notation

   (b) Pointer to an Array

   (c) Dequeues

   (d) Types of Data Structures

   (e) Array of Structures

SECTION – A

2. (a) Write a program to swap two integers using call by value method by passing arguments to a function. 8

(b) Write a program to merge two integer arrays and display the merged array in reverse order. 12

3. (a) Write an algorithm to implement the merge sort technique and also compute the complexity of the algorithm. 10

(b) What are stacks? Describe the array representation of stacks. Also discuss the applications of stacks. 10

SECTION – B

4. (a) Give the advantages and disadvantages of using pointers. 10

(b) Using pointers, write a program in C to reverse a string. 10

5. (a) What are doubly linked lists? Write the algorithm to perform insertion and deletion in a doubly linked list. 12

(b) Explain the following: 8

    (i) Applications of Linked Lists

    (ii) Header Linked Lists

SECTION – C

6. (a) What are the threaded binary trees? Explain in-order threading with example.   10

     (b) Give the algorithm for post order tree traversal. Justify with an example.   10

7. (a) Write an algorithm for depth first traversal of a graph. Explain with an example.   12

     (b) Give the linked and matrix representation of a graph.   8

SECTION – D

8. What are AVL trees? Discuss the operations that can be performed on AVL trees. Illustrate with an example.   20

9. Explain the following in detail: 20

     (a) Skip Lists

     (b) Indexed File organization