[Nov-13]

[EURCS-304A]
B.Tech. Degree Examination

Computer Science & Engineering
III SEMESTER

DATA STRUCTURES

(Effective from the admitted batch 2012–13)

Time: 3 Hours **Max.Marks: 60**

Instructions: Each Unit carries 12 marks.
Answer all units choosing one question from each unit.
All parts of the unit must be answered in one place only.
Figures in the right hand margin indicate marks allotted.

UNIT-I

1. a) Discuss the components of Space Complexity 6
   b) Explain about Best Worst and average operation counts in Time Complexity 6

OR

2. What is an irregular 2-Dimensional array? Write a C++ program that creates and uses an Irregular 2-Dimensional array 12

UNIT-II

3. Write a C++ program to join two Doubly Linked List in to a single Doubly Linked List 12

OR

4. Write a C++ program that illustrates Push, Pop and Delete operations in Stack 12

UNIT-III

5. Write the Pseudo code for breadth first search. Explain it with an Example 12

OR

6. a) What are the properties to be possessed for a binary tree? 6
   b) What is a Binary tree Traversal? Write algorithms for any two Binary tree traversal techniques 6

UNIT-IV

7. Write a C++ program for searching an element using Linear Search. Explain the implementation issues of Linear Search 12

OR

8. a) Compare the Best, Average and Worst case complexities of Linear Search and Binary Search 6

   b) From the given below which is the Best Searching Algorithm for Static Data and Dynamic Data

      i) Binary Search ii) Linear Search 6

UNIT-V

9. a) Sort the following sequence by using bubble sort

      50, 36, 11, 9, 55, 24, 27, 57, 22 6

   b) Compare the Best, Average and Worst case time complexity of the following

      i) Quick Sort ii) Merge Sort iii) Insertion Sort 6

OR

10. Write a C++ program to implement Selection Sort and Sort the following numbers by using selection sort 56, 36, 47, 12, 66, 69, 24, 27 12