[Nov-11]

[EURCS-304/EURIT-304]

B.Tech. DEGREE EXAMINATION

CSE & IT
III SEMESTER

DATA STRUCTURES

(Effective from the admitted batch 2007–08)

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. What is an Array? Explain the types of Arrays i.e., one, two and three dimensional arrays with examples. Write an algorithm to multiply two matrices. Explain indirect addressing (2+3+5+2)

OR

2. Write all the operations on single, double and circular linked lists in an algorithm 12

UNIT-II

3. What is an ADT? Define ADT for a stack. Write algorithms for array and linked representation of stack operations (2+5+5)

OR

4. Define Queue. Write algorithms for array and linked representation of Queue operations (2+5+5)

UNIT-III

5. List out the operations on B^+ trees. Explain with the help of algorithms 12

OR

6. a) Explain AVL tree rotations 6
   b) Explain Binary tree traversals 6

UNIT-IV

7. Write a program for Merge sort with an example. Show that the time complexity of a Merge sort of n elements is O(n logn) 12

OR

8. a) Write a program for Linear Search 4
   b) Discuss various types of Hashing Techniques with examples 8

UNIT-V

9. What are all different types of graph representations? Explain each with examples 12

OR

10. a) Write Kruskal's Algorithm to search an element in a Graph 10
    b) Specify the applications of Graphs 2

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