Code No: 5158D

R13

Time: 3hrs   Max.Marks:60

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 8 marks and may have a, b, c as sub questions.

PART - A

5 × 4 Marks = 20

1.a) Does array and vector representation illustrate same data structure? Justify. Mention the key differences between arrays and vectors in Java.   [4]

b) What are the differences between Array List and Array? Explain the use of ArrayList with the help of an example.   [4]

c) Mention the time required to search an element using linear and binary search for best, average and worst cases.   [4]

d) Write about different graph representations.   [4]

e) What are balanced search trees? Mention their applications.   [4]

PART - B

5 × 8 Marks = 40

2. Write a program to implement insertion and deletion operations on a doubly linked list.   [8]

OR

3. Explain about sparse matrices and their representation. Mention where sparse matrices are applicable.   [8]

4. Write an algorithm to convert infix expression to postfix expression using stack. Demonstrate for an example.   [8]

OR

5. Write a java program to implement Dequeue ADT.   [8]

6. Write a java program to implement binary search.   [8]

OR

7. Write a java program to implement Heap sort.   [8]

8. Write a program to implement threaded binary tree.   [8]

OR

9. Write a recursive java code for post-order tree traversal.   [8]

10. Explain with an example insertion and deletion operations of a binary search tree. [8]

OR

11. Explain about AVL trees.   [8]

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