2015

MCA

2nd Semester Examination

DATA STRUCTURE LAB

PAPER—MCA-206

(Practical)

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer any *one* question (*On Lottery basis*).

1. Write a program to sort elements using insertion sort. The input elements are provided dynamically. 60

2. Write a program to reverse a Linked List. 60

3. Write a program to sort elements using Quick sort. The inputs are provided dynamically. 60

4. Write a program to multiply two 2D matrices. 60

5. Write a program to merge two Linked Lists sequentially. 60

6. Write a program to implement selection sort. 60

7. Consider two Linked Lists A and B

   A: 7, 5, 8, 10, 20

   B: 6, 25, 32, 11, 9

   Write a program to combine A and B such that the resulting list contains nodes in the following order:

   7, 6, 5, 25, 8, 32, 10, 11, 20, 9 60

8. Write a program to reverse a string using stack. 60

9. Write a program to implement a stack using Queue. 60

10. Write a program to add, delete and display elements in a Queue. 60

11. Write a program to traverse a binary tree using Pre-order traversal. 60

12. Write a program to implement heap sort. 60

13. Write a program to traverse a binary tree using Post-order technique. 60

14. Write a program to implement Stack using Linked List and add, delete and display elements. 60

15. Write a program to implement Priority Queue. 60

16. Write a program to add two 2D matrices. 60

17. Write a program to find out two numbers 'a' and 'b' from a sorted array such that a + b = c; where 'c' is taken from input. The time complexity should be O(n), where 'n' is the size of the array. 60

18. Write a program to implement add and delete operations in Circular Queue. 60

Viva-Voce — 10

Internal Assessment — 30

Marks Distribution

1. Problem Description — 10%
2. Program Listing — 40%
3. Result and Discussion — 30%
4. Viva — 20%