Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer any TEN questions.

1.   Define: "Data Structure".

2.   Write down any two applications of a stack.

3.   Define the term "Array".   -

4.   List out any two applications of linked list.

5.   Write a note on dequeue.

6.   Write down the complexity of binary search.

7.   Draw a complete graph with four vertices.

8.   Define the term "Heap".

9.   What is the complexity of insertion sort?

10. What do you mean by Cut vertex?

11. Define: "Radix Sort".

12. Write a note on selection sort.

PART B — (5 × 5 = 25 marks)

Answer any FIVE questions.

13. Write a procedure to add two polynomials using singly linked list,

14. What is a queue? Explain the various operations performed on a queue.

15. Explain any two methods of representing a binary tree.

16. Explain the breadth first tree traversal with example.

17. Elaborate the various representations of a graph with neat diagram.

18. Write an algorithm for insertion sort.

19. What is an expression tree? Give an example.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

20. Explain the implementation of doubly linked list.

21. Compare the circular queue and priority queue.

22. What is a binary search tree ADT? Explain the insertion operation in binary search tree ADT.

23. Discuss the different types of graph with examples.

24. Illustrate the linear search algorithm with an example.

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