

**October 2017****Time - Three hours**  
**(Maximum Marks: 75)**

*IN.B: (1) Q.No. 8 in PART - A and Q.No. 16 in PART - B are compulsory. Answer any FOUR questions from the remaining in each PART - A and PART - B.*

*(2) Answer division (a) or division (b) of each question in PART-C.*

*(3) Each question carries 2 marks in PART - A, 3 marks in Part - B and 10 marks in PART - C.]*

**PART - A**

1. Define time complexity?
2. Define merging.
3. What are the two operations of stack?
4. What is recursion?
5. What is null pointer?
6. Define circular linked list.
7. What is a sibling?
8. Define searching.

**PART - B**

9. List out the advantages of linear array.
10. Define string.
11. What is dequeue?
12. Define priority queue.
13. What is the difference between sequential list and linked list?
14. What is expression tree?
15. Define hash function.
16. List out the types of traversal.

PART - C

17. (a) (i) Explain the algorithm for traversing an array.  
(ii) Explain bottom-up approach.  
(Or)
- (b) Explain the algorithm for deleting an element from an array.
18. (a) (i) Write a function to find the factorial of a given number.  
(ii) Explain the operation of queues.  
(Or)
- (b) Explain the conversion of infix expression to postfix expression using stack.
19. (a) (i) Write down the advantages and disadvantages of linked list.  
(ii) Explain searching a singly linked list.  
(Or)
- (b) Explain with example for deleting a last node from the singly linked list.
20. (a) (i) Explain post-order traversal with example.  
(ii) Explain adjacency list representation with example.  
(Or)
- (b) Discuss about depth first search.
21. (a) (i) Explain with example about bubble sort.  
(ii) Write a program in C for linear (sequential) search.  
(Or)
- (b) Explain the various collision resolution techniques.

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