

Time : 3 Hours

Max. Marks : 75

SECTION - A

Answer any FIVE of the following.

(Marks : 5×5 marks = 25 marks)

1. Define space and time complexity of an algorithm.
2. Write an algorithm for inserting and deleting an element into a linear array.
3. Describe the advantages of linked lists over arrays.
4. When Doubly linked lists are used?
5. What is priority queue? What are their applications?
6. What is Insertion sort? Explain its technique with an example.
7. Define properties of binary tree.
8. Mention different ways of graph traversals.

SECTION - B

Answer any FIVE of the following.

(Marks : 5×10 marks = 50 marks)

9. (a) Explain classification of data structure and operations on data structure:

Or

- (b) Explain types of array with example.

10. (a) What is linked list? How it is different from array? Explain the different types of linked list. Linked list.

Or

- (b) Describe the operations are performed on Circular Linked List.

11. (a) What is stack? List the applications of stack. Write an algorithm or procedure to perform PUSH and POP operation in stack.

Or

- (b) What is double ended queue? Write an algorithm to insert an element at rear end of the deque.

12. (a) Describe the Binary search and Sequential Search with their complexity.

Or

- (b) Sort the following data using Bubble sort: 89 56 78 12 47 98 69 32 21 13.

13. (a) What is binary tree? Explain the representation of binary tree? Explain the different operation on a binary tree.

Or

- (b) Explain in detail about BFS with examples.
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