

UNIT – IV

8. What do you mean by tree traversal ? Explain the various methods of tree traversal and write an algorithm of preorder and postorder traversal using stack.
9. What is minimum spanning tree ? What are its characteristics and applications ? Also explain the Prim's algorithm for minimum spanning tree by using example.

Roll No.

97670

BCA 3rd Semester (New)
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DATA STRUCTURE-I

Paper : BCA-202

Time : Three Hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all. Question No. 1 is *compulsory* and attempt *four* more questions by selecting *one* question from each Unit. All questions carry equal marks.

1. (a) Write four properties of an algorithm.
- (b) What do you mean by pattern matching ?

- (c) What is sparse array ?
- (d) Write two applications of link list.
- (e) Define recursion with the help of example.
- (f) What is the difference between FIFO lists and LIFO lists ?
- (g) Define full binary tree.
- (h) Define complete and connected graph.

UNIT - I

2. What is data and data structure ? Explain different categories of data structure. Also explain various common operations that can be applied to data structure.
3. What is a string ? Explain various methods to store string in memory along with its advantages and disadvantages.

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UNIT - II

4. What is two-dimensional array ? Explain sequential representation of two-dimensional arrays and derive the formula for address computation of elements of two-dimensional array.
5. What is a single linked list ? What are the various operations performed on a single linked list ? Write an algorithm to insert a node after a given node in a linked list.

UNIT - III

6. What is a stack ? Describe any two applications of stack and convert the expression $(A - B / C) * (D * E - F)$ to prefix form.
7. What is circular queue and priority queue ? Write the algorithm to insert and delete an element from a circular queue.

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