# BCA 3rd Semester Full and Reappear Examination, November-2023

## DATASTRUCTURE-1

## Paper–BCA-202

*Time allowed : 3 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 selecting one question from each unit. **Question No. 1 is compulsory.**

1. (a) What is Algorithm? 8×2=16
   (b) Write the algorithm and code for inserting an element in an array.
   (c) Define array.
   (d) What do you mean by Stack overflow?
   (e) Explain Recursion.
   (f) Explain properties of binary tree.
   (g) How do you Push and Pop elements in a stack?
   (h) Define Graph.

### Unit-I

2. (a) Define Data structure with its various types. 8
   (b) What is string? Define different operation of string. 8

3. What do you mean by pattern matching algorithm? 16





### Unit-II

4. (a) What is doubly linked list? 8
   (b) Define array as data structure & its operations. 8

5. (a) Compare Linked list with array in respect of both advantages and disadvantages. 8
   (b) Define Priority queues 8

### Unit-III

6. Explain doubly linked list with its operations : 16
   (a) Create
   (b) Insert
   (c) Delete

7. (a) What is Queue? Discuss its various applications. 8
   (b) Describe a method to convert an infix expression into a post fix expression with the help of a suitable example. 8

### Unit-IV

8. (a) Explain Binary tree with the help of example. Discuss the properties of binary tree that need to be considered. 8
   (b) Explain various methods of representing graphs to memory by giving suitable example. 8

9. What is meant by traversal of a graph? Discuss the breadth first and Depth first traversal techniques with the help of example. 16



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