

BCA-12

June – Examination 2024

BCA (Part II) Examination

DATA STRUCTURE AND ALGORITHM

Paper : BCA-12

Time : 3 Hours]

[Maximum Marks : 70

Note :- The question paper is divided into three Sections A, B and C. Write answers as per the given instructions.

Section-A

7×2=14

(Very Short Answer Type Questions)

Note :- Answer all questions. As per the nature of the question delimit your answer in one word, one sentence or maximum up to **30** words. Each question carries 2 marks.

1. (i) What is Dynamic Memory Allocation ?
- (ii) Define AVL Tree.

- (iii) What is role of Tree in searching ?
- (iv) What is Spanning Tree ?
- (v) What is Stack ?
- (vi) Define Recursion.
- (vii) Define Graph.

Section-B **4×7=28**

(Short Answer Type Questions)

Note :- Answer any *four* questions. Each answer should not exceed **200** words. Each question carries 7 marks.

2. Define Prim's Algorithm.
3. What are different ways to represent graph ?
4. Describe the condition for recursive function.
5. State the difference of sequential search and binary search on the basis of complexity.
6. Explain insertion sort.
7. Write an Algorithm for searching a node in singly linked list.
8. (i) Explain infix, prefix and postfix expression.
(ii) Write about linear data structure.
9. Write 'C' program to sort N elements using bubble sort.

Section-C **2×14=28**

(Long Answer Type Questions)

Note :- Answer any *two* questions. You have to delimit your each answer maximum up to **500** words. Each question carries 14 marks.

10. (i) Write Recursive Function for Tree Traversal.
(ii) Illustrate asymptotic notations with examples.
11. Write algorithm for the following :
(i) Post Order Tree Traversal
(ii) Pre Order Tree Traversal
12. (i) Write algorithm for Breadth First Search
(ii) Define Properties of Binary Tree
13. What is Queue ? Write 'C' function to perform insertion deletion operations of queue.