BCA–12

June – Examination 2023

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 Data Structure ?

   (ii) What do you mean by recursive function ?

(iii) What is linked list ?

(iv) What is LIFO structure ?

(v) What is meant by degree of tree ?

(vi) What is vertex and edges in graph ?

(vii) What is divide and conquer method ?

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. Write an algorithm for PUSH and POP function in the stack.
3. Write the algorithm for tree traversal.
4. Write about selection short with example.
5. What is difference between Static Memory Allocation and Dynamic Memory Allocation ?
6. Explain the Djikstra's shortest path algorithm.
7. How recursive function is used to solve the tower of Hanoi problem ? Explain with example.
8. Write the alogrithm for binary search.

9. Discuss the basic steps in showing any problem using branch and bound.

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. What is Data Structure ? Explain. Describe the types of data structure.
11. Explain the link implementation of binary search tree.
12. Write an algorithm to find the minimum and maximum element in an array. Also find its complexity.
13. Write short notes on the following :

    (i) Tree Data Structure

    (ii) Sorting in Data Structure