

# BCA-12

December – Examination 2022  
**BCA (Part II) Examination**  
**DATA STRUCTURE AND ALGORITHM**  
**Paper : BCA-12**

*Time : 3 Hours ]*

*[ Maximum Marks : 70*

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*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) Write the types of data structure.
- (ii) What is circular linked list ?

- (iii) What is meant by Dequeue ?
- (iv) What is strict binary tree ?
- (v) What is the undirected graph ?
- (vi) What is space complexity ?
- (vii) What do you mean by recursive function ?

**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 of unqueue and dequeue for the queue.
3. Write about insertion sort with example.
4. Explain Kruskal's minimal spanning tree algorithm.
5. Discuss the basic steps in solving any problem using branch and bound.
6. Write an algorithm to transverse a graph in BFS.
7. Write an algorithm for searching node in a binary search tree.

8. Write the algorithm for linear search.
9. What is the difference between dynamic and static memory allocation ?

**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 BST ? Explain the basic operation of BST.
11. What is Recursion ? Explain what are *three* types of recursion.
12. Define divide and conquer method with example.
13. Write short notes on the following :
  - (i) Linked list
  - (ii) Stack