

A (Printed Pages 4)
(20222) Roll No.
BCA-III Sem.

18012 (CV-III)

B.C.A. Examination, Dec.-2021

DATA STRUCTURE USING C AND C++

[BCA-302]

Time : 1½ Hours | Maximum Marks : 75

Note : Attempt questions from **all** Sections
as per instructions.

Section-A

(Very Short Answer Type Questions)

Note : Attempt any **two** questions. Each
question carry **7.5** marks.

2×7.5=15

1. What is hashing?
2. What is Binary Tree?
3. What is deque?
4. What is analysis of algorithm?

P.T.O.

5. Explain principle of Recursion?

Section-B

(Short Answer Type Questions)

Note : Attempt any **one** out of the following
three questions. Each question carry
15 marks. 1×15=15

6. What is linked list? Explain with suitable example and give an algorithm for insert an element.
7. Explain heap sort with suitable example.
8. Define and explain the stack data structure with suitable example.

Section-C

(Long Answer Type Questions)

Note : Attempt any **two** questions out of
the following five questions. Each
question carry **22.5** marks.

2×22.5=45

18012(CV-III)/2

9. What is Binary Tree? Explain it. The following binary tree has the inorder and preorder traversal. Draw the tree and give the postorder traversal. Write algorithm for the same.

Inorder- ABCEDFJGIH

Preorder- JCBADEFIGH

10. Explain Merge sort sorting algorithm and show step by step procedure to sort the data.
11. Explain Binary search and linear search? Give the supportive example for both.
12. (a) What is Multi dimensional Array? Explain with example.
- (b) Write the step by step for following expression.

$R \mid D - X * (G / E * (A + B) + D - E * (Y - F)) + S * J$

13. (a) Why doubly linked list is better than linked list? Justify it with example.
- (b) What is threaded Binary tree? Explain it with suitable example.