

D (Printed Pages 4)
(21224) Roll No.
BCA-III Sem.

18012

B.C.A. Examination, Dec.-2024

Data Structure Using C and C++

(BCA-302)

Time : Three Hours] [Maximum Marks : 75

Note : Attempt questions from **all** the sections as per instructions.

Section-A

(Very Short Answer Type Questions)

Note : Attempt all **five** questions. Each question carry 3 marks. $3 \times 5 = 15$

1. What are the different Hash function used in Hashing Technique. 3

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2. What is a recursive algorithm explain giving example. 3
3. Explain B.S.T. Also write its uses. 3
4. What are expressions in programming. Explain its types. 3
5. What is the difference between Static and dynamic memory alocation. 3

Section-B

(Short Answer Type Questions)

Note : Attempt any **two** questions. $7.5 \times 2 = 15$

6. Write a C++ or C program to show Linear search technique. 7.5
7. Using selection sort arrange the given Keys in descending order. 7.5
- Keys \rightarrow 6, 2, 1, 3, 11, 14, 4

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8. What is a Stack? Using C code show Push and Pop operations in stack. Also display stack elements. 7.5

Section-C

(Detailed Answer Type Questions)

Note : Answer any **three** questions. $15 \times 3 = 45$

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9. How do you implement a Two Way list?

10. What is a B-Tree? Create a B Tree of order 3 using 10, 20, 30, 40, 50, 60, 70, 80, 90 in an initially empty B-Tree. What are the uses of a B-Tree. 15

11. (a) Write Post and Prefix forms of the expression. 5

$A+B * (C-D)/(P-R)$

(b) Write different ways of implementing a Queue data structure? Show array implementation of Queue. 10

12. What is data structure? Explain various types of data structure in detail. 15

13. Write short notes on : 15

(a) Lower and Upper triangular matrices

(b) Merge Sort

(c) Different types of Trees

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