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 (20221) Roll No.
 B.C.A.-III Sem.

18012

B.C.A. Examination, Dec.-2020

DATA STRUCTURE USING C AND C++

(BCA-302)

Time : Three Hours] [Maximum Marks : 75

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

Section- A

(Very Short Answer Questions)

Note : Attempt **all** questions. 3×5=15

1. Explain the data structure's operations. 3
2. How can we minimize the stack overflow? 3

P.T.O.

3. Write prefix & postfix form for $A+B *(C-D) / (E-F)$ 3
4. Design a recursive factorial function using C/C++ language. 3
5. Explain the term Hashing. 3

Section - B

(Short Answer Questions)

Note: Attempt any **two** questions. $2 \times 7\frac{1}{2} = 15$

6. Describe the types of sparse matrix. How can we store a 2D sparse matrix in a corresponding single dimensional array? Find the formula for address calculation. 7½
7. Explain D-Queue & priority queue with a suitable example. 7½
8. Write a program in C/C++ to multiply two matrices A & B. 7½

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Section - C

(Detailed Answer Questions)

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

9. (a) Perform Quick sort operation on given numbers. 15
66, 35, 48, 55, 62, 77, 25, 38, 18, 40, 30, 20.
- (b) Apply Bubble sort on DATASTRUCTURES.
10. Discuss the programming code in C/C++ language to create, insert & delete the elements in a singly linked list. 15
11. Explain the properties of B-Trees. Also create a B-Tree of order 3 for following data. 15
Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

12. (a) Create a Heap tree with the following element. 15
95, 13, 12, 71, 96, 10, 62, 43, 35, 38.
- (b) Make a Binary search tree for given data.
14, 15, 4, 9, 7, 18, 3, 5, 16, 4, 20, 17, 9, 14, 5.
13. (a) Design a function CQINSERT for static implementation of circular queue. 15
- (b) Differentiate linear & Binary search with suitable example.

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