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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

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. 2×7½=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

Section - C

(Detailed Answer Questions)

Note: Attempt any **three** questions.3×15=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.