Total No. of Questions : 8] [Total No. of Printed Pages : 3

Paper Code : 21313

F-413

B.C.A. (Third Semester) Examination, 2021

(New Course)

Paper - BCA-303-N

DATA STRUCTURES USING C

Time : Three Hours] [*Maximum Marks : 70*

Note : Attempt any **five** questions. **All** questions carry equal marks.

1. (a) What is data structure, differentiate between non-linear data structure and linear data structure with appropriate example?

   (b) What is an algorithm? Write various asymptotive notation for algorithm complexity?

2. (a) Define array. What are its various storage techniques in memory?

   (b) Define sparse matrix?

   (c) How can on pass array as parameter in C program, explain?

3. (a) What are queues, how can one perform addition and deletion in queue, explain with appropriate algorithm?

   (b) What are dequeues, explain?

4. (a) Write a program to create singly linked list and display the list?

   (b) Write a program to impement quick sort and show step by step for following element by quick sort :

   19 27 5 9 86 45

5. (a) What are different methods for tranersing the graph? Explain DFS in detail with an examples?

   (b) Distinguish between linear and binary search methods?

(1) P.T.O.

21313-F-413 (2)

6. (a) Write the result of evaluating the post fix expression

AB - CD*/ given

A = 2,

B=10,

C=4

D=1

(b) What are hash functions, explain with suitable example?

7. What are Binary Search Tree (BST) how can one perform insertion and deletion in binary search tree explain?

8. Write short notes (Any two) :

(i) Adacency matrix

(ii) Bubble sort

(iii) Sparse matrix

(iv) Multigraph

21313-F-413 (3)