V.V.M'S Shree Damodar College Of Commerce & Economics, Margao-Goa

F.Y.B.C.A, SEM II, END SEMESTER EXAMINATION, APRIL 2018
DATA STRUCTURES , BCA-201

Duration: 2 Hours   **Total Marks:** 50

Instructions: 1) All Questions are Compulsory.

2) Figures to the right indicate Full Marks.

3) Start Each New Question on New Page.

Q.1 Answer the following.   **(2 x 5 mks = 10 mks)**

a) Name the Data Structures used for the following

i) Function Calls   ii) Large Data Storing

iii) Job scheduling   iv) Network Distance Analysis

b) Explain how Data Structure supporting LIFO different from FIFO.

c) Give differences between BFS & DFS Graph Traversal Methods.

d) Name and explain any two variation of Linked List.

e) For given Binary Tree array representation give Postorder traversal.

A	B	D	C	E	F	null	H	I

Q2) Answer the following.   **(10 mks)**

a) Name & Explain techniques used for the following.   **(2mks)**

Input stored in array :   **25 , 4 , 3 , 9**

Output at 1ˢᵗ Iteration is :   **3 , 25 , 4 , 9**

b) Name and Write the Efficient Algorithm used for data searching in an array which is in sorted order.   **(3mks)**

c) Explain with diagram how Bubble sorting differs from Insertion sorting in arranging given set of data in an Array. Data set :: **101 , 25 , 1** .   **(5 mks)**

P.T.O.

Q3) Answer the following. (10 mks)

    a) "Circular Queue is efficient as compared to Simple Queue" .Give your opinion with Justification. (2 mks)

    b) Write the algorithm for the following implementation using Arrays. (3 mks)

        i)   Push data on Stack Data Structure

        ii)   Dequeue Data from Queue data structure

    c) Write Algorithm for the following. (5 mks)

        i)   Add node to Linked List after any value.

        ii)   Delete node at End of Linked List.

Q4) Answer the following. (10 mks)

    a) Define the following terms used in Tree data structure . (2 mks)

        i) BST   ii) CBT

    b) For Given Postfix expression give Infix Expression and draw Expression Tree.

                                               (3 mks)

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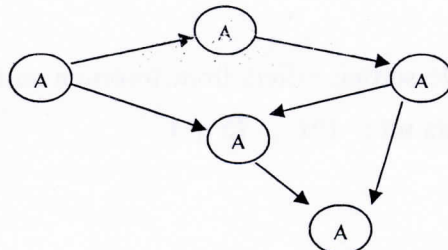   **c)** For the given data set explain Heap sort with Maximum Heap tree construction.

        25   , 40 , 3 , 15 , 9 (5 mks)

Q5) Answer the following. (10 mks)

a) Why tree is considered as special Graph and Graph is not a tree DS (2 mks)

b) Define the following terms. (3 mks)

      i) BFS Spanning Tree   ii) Cycle in a Graph iii) Undirected Weighted graph

c) Give Adjacency Matrix & Adjacency List for the graph given below. (5 mks)

******** ***************** ALL THE BEST *************** *********