Roll No ....

MCADD-202

M.C.A. (Integrated), II Semester

Examination, November 2019

Data Structure Using C

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions .

ii) All questions carry equal marks.

1. a) Write features of array, structures and pointer data structures. 7

   b) Compare Stack and Queue. Write algorithm to insert an element in a stack. 7

2. a) Write prefix and postfix of the following: 7

   i) $(A+B-D)/(E-F)+G$

   ii) $A-B/(C\uparrow D)+(E*F)$

   b) Evaluate the expression $abc + *de / -$ where values of a, b, c, d and e are 5, 6, 2, 12 and 4 respectively in tabular form showing stack after every step. 7

3. a) What is a Linked list? Write its advantages and disadvantages. 7

   b) Compare linear queue and circular queue. 7

4. a) Write a program in C to create a singly linked list of integer values. 7

b) Describe doubly linked list and write its advantages and disadvantages over singly linked it.   7

5. a) Define the following terms with respect to tree data structure.   7

    i) height   ii) depth

    iii) order   iv) degree

b) Describe various tree traversal techniques with example. 7

6. a) What are threaded binary trees? Give example and mention its advantages and disadvantages.   7

b) Write binary search algorithm.   7

7. a) Sort the following array using insertion sort: 7

    Write the content of array after each cycle.

    25, 15, 30, 9, 99, 20, 26.

b) Write a program in C to sort elements of an array using bubble sort.   7

8. a) Define the following terms: 7

    i) Graph

    ii) Adjacency Matrix

    iii) Adjacency list

b) What is an AVL Tree? Explain with example and write its properties.   7

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