Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No 08.bCA21DD.24

MCADD-202

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

Examination, June 2022

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 and discuss various applications of stack and queue data structure in computer.

   b) How to evaluate postfix expression? Write its algorithm and explain with suitable example.

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

   i) (A + B – D) / (E – F) + G

   ii) A – B / (C ↑ D) + (E * F)

   b) Write C functions to

   i) Insert an item in an ordered linked list

   ii) To delete a specified item

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

   b) Compare linear queue and circular queue.

4. a) What is the difference between height and depth of a binary tree? How these two are calculated through number of nodes of a binary tree?

   b) Explain the properties of heap. How max heap is created? Explain with suitable example.

5. a) Explain BFS and DFS traversal in Graph.

   b) Write Dijkstra algorithm to find the shortest path and explain.

6. a) Apply the bubble sort on the following numbers in order to arrange in ascending order.

   25, 5, 100, 10, 75, 15, 35

   b) Discuss merge sort and its efficiency.

7. Describe the linked Implementation of stacks and Queues.

8. a) Define the following terms:

   i) Graph

   ii) Adjacency Matrix

   iii) Adjacency list

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

******