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Sl. No.

22MCA1C1L

MCA I Semester (NEP) Degree Examination, June - 2023

MASTER OF COMPUTER APPLICATIONS

Data Structures with Algorithms

Time : 3 Hours

Maximum Marks : 70

Instruction to Candidates : Answer any five questions (Question No.1 is Compulsory).

1. (a) Define Data Structures. Explain the various classification of Data Structures. **7**
(b) Write the pseudo code for Insertion Sort. **7**
2. (a) Write a pseudo code for converting infix to postfix expression. **7**
(b) Write a program to demonstrate circular queue operations. **7**
3. (a) Explain the advantages and disadvantages of Singly linked list. **7**
(b) Give the pseudo code to insert and element at the end of doubly linked list. **7**
4. (a) Define Trees. Give the recursive definition of various traversals of the tree. **7**
(b) Explain the Array and linked list representation of the tree with an example. **7**
5. (a) Define Hashing. List and explain the various hash collision techniques. **7**
(b) List the properties of a good hash functions. **7**
6. (a) Compare the Stack and Queue Data structures. **7**
(b) List the applications of linked lists. **7**
7. (a) Define priority queues. List the properties of a Priority queue. **7**
(b) What are AVL Trees ? List the properties. **7**
8. (a) How to evaluate a Postfix expression ? Give example. **5**
(b) List the applications of Trees. **5**
(c) Define M-Way trees. List any three advantages over binary tree. **4**

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