

# S-714

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Roll No. -----

## MSCIT-06/PGDCA-06

Data Structure through C Language

(PGDCA/MSICIT)

2<sup>nd</sup> Semester, Examination 2022(Dec.)

Time: 2 Hours

Max. Marks: 70

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

### Section – A

(Long Answer – type questions)

Note: Section 'A' contains Five (05) long-answer-type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

[2 x 19 = 38]

P.T.O.

- Q.1. What pseudo code for bubble sort. Perform bubble sort on following list of integers  
21, 1, 34, 28, 6, 85, 23, 17, 22, 80, 11, 2, 7, 25.
- Q.2. Compare BFS and DFS traversal methods for graph with suitable example.
- Q.3. Write a Pseudo code for insertion and deletion in binary search tree. Describe of insertion and deletion in binary search tree.
- Q.4. Define the following term:  
(i) Priority queue  
(ii) Circular queue,  
(iii) deque  
Give a suitable example of each.
- Q.5. What is data structure? Explain linear and non linear data structure with the help of example.

## Section – B

### (Short-answer-type questions)

Note: Section 'B' contains Eight (08) short-answer-type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.

[4 x 8 = 32]

- Q.1. What is Selection Sort? Explain its operations using suitable example.
- Q.2. Describe Tree traversal algorithms (in order, pre order, post order) using suitable example.
- Q.3. Sort the following numbers in ascending order using Insertion sort.  
Given Numbers: 348, 14, 614, 5381, 47 and write the output after each iteration.
- Q.4. Discuss Asymptotic Notations.
- Q.5. Differentiate between Binary Search and Sequential Search?

P.T.O.

- Q.6. Implement C Program for performing following operations on Array: Insertion, Display.
- Q.7. Describe any two types of trees from the following:  
General tree, binary tree, binary search tree.
- Q.8. Explain the working of merge sort on the following data:10, 15, 0, 17, 20, 25, 30, 16, 70, 6.

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