**Roll No.** | | | | | | | | | | | | **Total No. of Pages :02**

**Total No. of Questions : 09**

**B.Tech.(3D Animation & Graphics) / (CSE) / (IT)**

**(Sem.–3)**

# DATA STRUCTURES

**Subject Code : BTCS-304**

**M.Code : 56594**

**Date of Examination : 17-01-23**

**Time : 3 Hrs.** **Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

## SECTION-A

**1. Explain the following :**

a) Overflow

b) Dangling pointers

c) Deque

d) Infix expression

e) Heaps

f) In degree in graphs

g) Arrays

h) Sparse matrix

i) Rehashing

j) Big 'O' notation.

## SECTION-B

2. Write a note on Arrays.

3. Write an algorithm to insert a node in doubly linked list.

4. Differentiate between BFS and DFS in graphs.

5. Write an algorithm for binary search.

6. Perform bubble and quick sort on given array.

   55, 47, 88, 12, 30, 99, 23, 65, 71

## SECTION-C

7. Create a BST of 15 nodes. Write all 3 traversals.

8. What is a heap tree? Write an algorithm for heap sort.

9. What do you mean by infix, prefix and postfix expressions? How to evaluate postfix?

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student**.