Roll No. : .....

Total No. of Questions : **16** ] [ Total No. of Printed Pages : **3**

# SEM–1001

## M.Sc. (Lateral Entry) (Ist Semester) Examination, 2022

## COMPUTER SCIENCE

Paper – FS–COMP–MCSLE–CC–101

## (Data Structure)

*Time : **3** Hours* ] [ *Maximum Marks : **40***

The question paper contains three Sections.

**Section–A** **(Marks : 1 × 10 = 10)**

***Note*** :– Answer all *ten* questions (Answer limit **50** words). Each question carries **1** mark.

**Section–B** **(Marks : 3 × 5 = 15)**

***Note*** :– Answer any *five* questions by selecting at least *one* question from each Unit (Answer limit **200** words). Each question carries **3** marks.

**Section–C** **(Marks : 5 × 3 = 15)**

***Note*** :– Answer any *three* questions by selecting *one* question from each Unit (Answer limit **500** words). Each question carries **5** marks.

**Section–A**

1. Attempt all questions. Answers should not exceed **50** words in each question.

   (i) Define Algorithm.

(ii) List down any *four* applications of Data Structure.

(iii) What do you mean by Primitive Data Structure ?

(iv) What is Priority Queue ?

(v) What are the *two* operations of Stack ?

(vi) Name the three fields of Doubly Link List.

(vii) How do you test for an Empty Queue ?

(viii) Define non-linear data structure.

(ix) What are the different types of Traversing ?

(x) What is a Weighted Graph ?

## Section–B

***Note*** :– Answer any *five* questions in about **200** words, by selecting at least *one* question from each Unit. Each question carries **3** marks.

### Unit–I

2. Define Time Complexity.

3. Write an algorithm for insertion operation in a circular linked list.

4. Write an algorithm for deletion operation in a Linear Linked List.

### Unit–II

5. Write an algorithm to evaluate a postfix expression and explain it with example.

6. Write postfix form of the expression – A + B – C + D.

7. Explain Queue and D-queue.

### Unit–III

8. Define Strictly Binary Tree.

9. Explain in detail insertion into AVL Tree.

10. Explain the degree and indegree of a graph.

## Section–C

***Note*** :– Answer any *three* questions in this Section, by selecting *one* question from each Unit in about **500** words. Each question carries **5** marks.

### Unit–I

11. Write the operations of circular linked list.

12. Write an algorithm to reverse the digits of a decimal number.

### Unit–II

13. Write a program to create an empty stack and to push an element into it.

14. Explain circular queue with operations.

### Unit–III

15. What is B-Tree ? Explain its basic operations (searching and insertion only).

16. Explain dept first traversal in graph with example.