

Roll No.

23726

**M. Tech. 1st Semester (Artificial
Intelligence & Data Science)
Examination – January, 2023**

C++ & DATA STRUCTURES

Paper : 21MTAI21C1

Time : Three hours] [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting one question from each Unit. Question Number 1 is compulsory. All questions carry equal marks.

1. Write short note on the following : 4 × 5 = 20
- (a) Copy Constructors
 - (b) Overriding
 - (c) Hashing
 - (d) Circular Linked Lists

UNIT – I

2. Describe the concept of object oriented programming and explain the following : 20
- (i) Dynamic Binding
 - (ii) Encapsulation

3. Describe the following : 2 × 10 = 20
(a) Operator in C++
(b) Member Functions of the Class

UNIT – II

4. Explain the following : 2 × 10 = 20
(a) Hybrid Inheritance
(b) Function Overloading
5. (a) Describe unary and binary operator overloading
in detail. 10
(b) How does 'new' and 'delete' work in C++ ? 10

UNIT – III

6. Define the concept of Data Structure. Explain its types
in detail. 20
7. Describe the following : 2 × 10 = 20
(a) Application of Arrays
(b) Binary Searching

UNIT – IV

8. Give a complete description about Linked List. 20
9. Define Stack. Also describe the conversion from Infix
to Postfix and prefix expressions using stack. 20