

Roll No. _____

23726

**M. Tech. 1st Semester (Artificial
Intelligence and Data Science)
Examination – February, 2022**

C++ & DATA STRUCTURES

Paper : 21MTA2121

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 No. 1 is compulsory. All questions carry equal marks.

1. Write short note on the following :

5 × 4 = 20

- (a) Procedural programming
- (b) Multilevel inheritance
- (c) Radix sort
- (d) Linked list

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UNIT - I

2. Define object oriented programming. Explain characteristics of object oriented programming in detail. 20

3. Explain the following: 20

- (i) Recursion
- (ii) Constructor

UNIT - II

4. Define inheritance. Explain types of inheritance in detail. 20

5. Describe exception and exception handling in detail. 20

UNIT - III

6. (i) Define Algorithm. Explain topdown and bottomup approach. 10

(ii) Define array. Explain operations on arrays in detail. 10

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7. Define sorting and explain the following: 20

- (i) Selection sort
- (ii) Bubble sort

UNIT - IV

8. Define stack. Explain applications of stack in detail. 20

9. Explain the following: 20

- (i) Singly linked list
- (ii) Doubly linked lists

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