

**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE**  
(UGC-AUTONOMOUS)

**MCA I Year II Semester (R16) Supplementary End Semester Examinations – March 2022**  
(Regulations: R16)

**DATA STRUCTURES THROUGH C++**

Time: 3Hrs

Max Marks: 50

Attempt all the questions. All parts of the question must be answered in one place only.

**In Q.no 1 to 5 answer either Part-A or B only**

- Q.1(A) a) How Constructor differs with a member function? Explain with an example. 10M  
b) Explain how to handle Exceptions in C++?
- OR**
- Q.1(B) a) How to use static class members? Explain with an example. 10M  
b) What do you mean by Function Overloading? Explain with a suitable example.
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- Q.2(A) What is Inheritance? Discuss its types in brief? Explain about Multiple Inheritance with an example. 10M
- OR**
- Q.2(B) a) Distinguish between Function and class template. 10M  
b) How Array are passed as an parameter? Explain.
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- Q.3(A) a) Explain how Recursion can be attained through stacks. 10M  
b) Write an algorithm to insert an element at the end in the linked list.
- OR**
- Q.3(B) a) Define Queue? How Insertion Operation takes place in Queue with an algorithm. 10M  
b) Write a note on Linked lists using dynamic variables.
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- Q.4(A) How Skip List Represented? Explain insertion and searching Operations on it. 10M
- OR**
- Q.4(B) Write a Short note on the following 5M\*2=  
a) Quadratic Probing. 10M  
b) Extendible hashing.
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- Q.5(A) What is an AVL Tree? Explain its Operations in detail. 10M
- OR**
- Q.5(B) Discuss the following in brief 5M\*2=  
a) Quick Sort. 10M  
b) Indexed sequential search.

**\*\*\* END\*\*\***