

Hall Ticket No:

Question Paper Code: 16MCA105

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

MCA I Year II Semester (R16) Supplementary End Semester Examinations – Dec 2020

(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) How to define a class in C++? How to declare objects for the class? Give an example. 10M

OR

Q.1(B) Write a C++ program to define three overloaded functions to swap two integers, swap two floats and swap two doubles. 10M

Q.2(A) What is inheritance? Present the advantages and disadvantages of inheritance. 10M

OR

Q.2(B) Explain in detail about function overloading and function templates and illustrate with an example. 10M

Q.3(A) a. Compare and contrast the differences between arrays and linked lists 5M
b. Convert the prefix expression $-/ab^*+bcd$ into infix expression 5M

OR

Q.3(B) Explain the implementation of stacks using linked lists? Write the pseudo code for PUSH and POP operations on the Stack? 10M

Q.4(A) Swap two adjacent elements by adjusting only the pointers using doubly linked lists. 10M

OR

Q.4(B) a. Differentiate between hashing and skip lists. 5M
b. Write a short note on quadratic probing. 5M

Q.5(A) Explain various methods in which a binary tree can be represented. Discuss their advantages and disadvantages. 10M

OR

Q.5(B) Sort the following numbers using merge sort 45, 34, 12, 46, 27, 56, 11, 87, 6, 33, 28 10M

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