



M 27788

Reg. No. :

Name :

**II Semester M.C.A. Degree (Reg./Sup./Imp.) Examination, July 2015
(2014 Admn.)**

MCA 2C08 : DATA STRUCTURES AND ALGORITHMS USING C++

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **any ten** questions. **Each** question carries **three** marks.

1. What are the differences between constructor and destructor ?
2. What are the functions of overloading operators ?
3. Mention the different ways of inheriting the members of a class.
4. What are the usage of the unformatted I/O functions ?
5. Define abstract data type, explain with an example.
6. What are the important operations of stack and queue ?
7. How to concatenate two singly linked list of characters ?
8. What are the merits and demerits of binary tree ?
9. Mention the drawbacks of tree traversal.
10. How to insert an element to a threaded binary tree ?
11. Write an algorithm to traverse the graph in breadth first order.
12. What are the differences between internal sorting and external sorting ? (10×3=30)

P.T.O.



SECTION – B

Answer **all** questions, **each** question carries **ten** marks.

13. a) What are dynamic constructors, discuss the dynamic constructors and destructors for string objects.

OR

- b) With suitable, show how data conversion is achieved from one class to another.

14. a) Explain public, private and protected access specifiers and how their visibility, when they are inherited as public, private and protected ?

OR

- b) Explain multiple inheritance and give its general form. Illustrate multiple inheritances by a C++ program.

15. a) Define the terms queue and circular queue. Write an algorithm to perform Enqueue Operations.

OR

- b) Design an algorithm to reverse a given singly linear linked list.

16. a) Use a single dimensional array for representing a binary tree. Design pre-order traversal algorithm.

OR

- b) Develop an algorithm to search an element in a binary tree.

17. a) Explain depth-first and breadth-first traversal of an undirected graph.

OR

- b) What are the merits of heap sort, explain the steps involved in creating a heap ?

(5×10=50)