



K17P 1140

Reg. No. :

Name :

**Second Semester M.C.A. Degree (Regular/Supplementary/
Improvement) Examination, July 2017
(2014 Admission Onwards)**

MCA2C08 : DATA STRUCTURES AND ALGORITHMS USING C++

Time : 3 Hours

Max. Marks : 80

SECTION - A

Answer any ten questions, each question carries three marks. (3×10=30)

1. Compare and contrast constructors and destructors.
2. What are the functions of this pointer ?
3. Mention the uses of manipulators.
4. Define protected members in C++.
5. Mention the various methods of I/O classes.
6. What are the uses of Standard Template Library (STL) ?
7. Mention the significant features pure virtual functions.
8. What are the uses of Abstract Data Types ?
9. How recursive function is differ from Linked List ?
10. What are the merits of circular queue ?
11. Mention the various operations of binary search tree.
12. How to distinguish depth first traversal and breadth first traversal ?

P.T.O.



SECTION – B

Answer all questions, each question carries ten marks.

13. a) Explain the following with respect to the OOP, with suitable examples. 10
i) private
ii) public
iii) protected.
OR
b) Describe the operator and function overloading briefly with suitable examples. 10
14. a) What is inheritance ? Explain with suitable example various modes of inheriting properties of base class in derived classes. 10
OR
b) Explain how virtual polymorphism is achieved in C++, with suitable examples. 10
15. a) Explain the basic operations of singly linked list and doubly linked list with suitable example. 10
OR
b) i) Write an algorithm to perform push and pop operations using array. 5
ii) Write an algorithm to insert an element to a queue. 5
16. a) Define recursion, discuss the merits and limitations of recursion techniques. 10
OR
b) i) Explain the basic operations of binary tree. 5
ii) Discuss the applications and properties of B-trees. 5
17. a) List out various sorting techniques. Explain any two important most efficient algorithms of sorting briefly. 10
OR
b) i) What are the properties of minimum spanning tree ? 5
ii) What are the techniques of graph traversal ? Briefly explain. 5
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