



K19P 0917

Reg. No. :

Name :

**II Semester M.C.A. Degree (Reg./Suppl./Imp.) Examination, July 2019
(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. **(10×3=30)**

1. Compare constructors and destructors.
2. Define this pointer and mention the uses.
3. What is a constructor ? How is it different from normal function ?
4. Define pure virtual function. What is the need for pure virtual function ?
5. Define protected member in C++.
6. List the differences between singly linked list and doubly linked list.
7. Define queue. What are the uses of queue in real life ?
8. List the difference between stack and queue.
9. Define tree. What are the uses of tree data structure in real world ?
10. Define AVL tree and list the uses.
11. Define graph. Write the syntax to represent a graph.
12. Compare insertion and selection sort.

P.T.O.



SECTION - B

Answer all questions. Each question carries ten marks. (5×10=50)

13. a) What is operator overloading ? Demonstrate the same with a suitable example. 10

OR

b) Define friend function. Demonstrate the use of friend function with an example. 10

14. a) Demonstrate overloading of >> and << with an example. 10

OR

b) Explain the Standard Template Library of C++. 10

15. a) Write an algorithm for infix to post fix conversion. Convert the following infix expression to post expression $A + B * C - D/E * F$. 10

OR

b) Write an algorithm to sort linked list and perform merging of the two sorted linked list. 10

16. a) Demonstrate the various operations on binary tree. 10

OR

b) Define recursion. Discuss the merits and limits of recursion technique. 10

17. a) Explain the various graph traversals with example. 10

OR

b) Write Kruskal's algorithm and demonstrate it with an example. 10