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**